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CONTENTS OF VOLUME 33

ARTICLES

The Preservation of Local Types of Weapons and other Objects in Western Australia. WILFRID D. HAMBLY.....	1
Notes on the Archaeology of Central Texas. FRANK BRYAN ..	16
Petroglyphs, the Record of a Great Adventure. MARY RUSSELL F. and HAROLD S. COLTON.	32
A Bear River Shaman's Curative Dance. GLADYS A. NOMLAND. .	38
Prehistoric Caves North of the Himalaya. H. DE TERRA... ..	42
Two Mimbres River Ruins. EDITHA L. WATSON... ..	51
Notes on Hopi Ceremonies in their Initiatory Form in 1927-1928. JULIAN H. STEWARD... ..	56
Minute Beads from Prehistoric Pueblos. EMIL W. HAURY	80
Types of "Tronattas" or Stone Implements Used by the Aborigines of Tasmania. WILFRID D. HAMBLY.....	88
Jesse Walter Fewkes. WALTER HOUGH	92
Henry Wetherbee Henshaw. F. W. HODGE and C. HART MERRIAM. .	98
Historical Reconstruction of Culture Growths and Organic Evolution. A. L. KROEBER.....	149
The Negro Spiritual: A Problem in Anthropology. GUY B. JOHNSON	157
Morphology and Functions of the Australian Murngin Type of Kinship. W. LLOYD WARNER	172
The Maya Day-Signs Been and Kan. HERMANN BEYER	199
The Distribution and Process of Suttee in North America. WILLIAM CHRISTIE MACLEOD.....	209
Plains Indian Tribal Correlations with Sun Dance Data. FORREST CLEMENTS... ..	216
The Indian Office Pays a Debt. MAURICE G. SMITH... ..	228
Maurice G. Smith. HUTTON WEBSTER... ..	230
The Doctrine of Survivals. MARGARET T. HODGEN... ..	307
An Analysis of the Northwestern Chihuahua Culture. HENRY A. CAREY... ..	325
The Phytogeography of Cultivated Plants in Relation to Assumed Pre-Columbian Eurasian-American Contacts. E. D. MERRILL..	375
Wisconsin Pottery. W. C. MCKERN... ..	383
Navaho Treatment of Sickness: Diagnosticians. WILLIAM MORGAN	390
Alfred Percival Maudslay. ALFRED M. TOZZLER ...	403
George A. Dorsey. FAY-COOPER COLE... ..	413
Herman F. C. ten Kate. JAC. HEYINK and F. W. HODGE... ..	415

The Religious Organization of North Central California and Tierra del Fuego. E. M. LOEB.	517
Montagnais-Naskapi Bands and Early Eskimo Distribution in the Labrador Peninsula. FRANK G. SPECK	557
Education at Ongtong Java, Solomon Islands. H. IAN HOGEIN	601
Polynesian Leis. E. D. W. BROWN.	615
Noah Webster, the Archaeologist. G. HUBERT SMITH.	620

BOOK REVIEWS

LUNDBERG: Social Research. A Study in Methods of Gathering Data. (<i>Redfield</i>).	106
FRAZER: Myths of the Origin of Fire. (<i>Wallis</i>)	107
WINTHUIS: Die Wahrheit über das Zweigeschlechterwesen durch die Gegner bestätigt. (<i>Wallis</i>).	107
METFESSEL: Phonophography in Folk Music. (<i>Roberts</i>).	108
WISSLER: An Introduction to Social Anthropology. (<i>Lowie</i>)	111
GILLIN and BLACKMAR: Outlines of Sociology. (<i>Wallis</i>)	112
SELIGMAN: Races of Africa. (<i>Kroeber</i>)(<i>Humbly</i>)	112
HUFFMAN: Nuer-English Dictionary. (<i>Sapir</i>).	114
BÖSCH: Les Banyamwezi of East Africa. (<i>Humbly</i>)	115
THOMPSON: Ethnology of the Mayas of Southern and Central British Honduras. (<i>Beals</i>)	117
LINNÉ: Darien in the Past. (<i>Kroeber</i>)	118
VESTAL: 'Dobe Walls, A Story of Kit Carson's Southwest. (<i>Smith</i>)	119
TESSMAN: Die Indianer Nordost-Perus: Grundlegende Forschungen für eine Systematische Kulturkunde. (<i>Kroeber</i>)	120
ROBERTS: Shabik'eschee Village, a Late Basket Maker Site in the Chaco Canyon, New Mexico. (<i>Kidder</i>)	121
YURRITA: La cultura del vaso campaniforme; su origen y extensión en Europa. (<i>Forde</i>).	127
PONTOIS: Le Finistère préhistorique. (<i>Forde</i>)	129
STIBBE: An Introduction to Physical Anthropology. (<i>Kroeber</i>)	231
RADIN: Primitive Man as Philosopher. (<i>Kroeber</i>).	231
LOWIE: Notes on Hopi Clans. (<i>Parsons</i>) Hopi Kinship. (<i>Parsons</i>)	232
REDFIELD: Tepoztlan: A Mexican Village. (<i>Kroeber</i>)	236
Bulletin of the Texas Archaeological and Palaeontological Society. (<i>Kroeber</i>)	238
BARBEAU: Totem Poles of Gitksan. (<i>Newcombe</i>)	238
KARSTEN: Ceremonial Games of the South American Indians. (<i>Kelly</i>)	243

MEANS: Peruvian Textiles: Examples of the Pre-Incaic Period. (<i>Kroeber</i>)	244
DEBENEDETTI: Las Ruinas del Pucara, Tilcara, Quebrada de Huamaca (Provincia de Jujuy). (<i>Lothrop</i>)	244
CHILDE: The Most Ancient East. (<i>Forde</i>)	245
MEAD: Growing Up in New Guinea. (<i>Kroeber</i>)	248
WILLIAMS: Orokaiva Society. (<i>Loeb</i>)	250
MADDON: The Medicine Man. (<i>Loeb</i>)	252
LACHMANN: Musik des Orients. (<i>Herzog</i>)	253
DESCAMPS: Etat social des peuples sauvages. (<i>Du Bois</i>)	419
MENGHIN: Weltgeschichte der Steinzeit. (<i>MacCurdy</i>)	420
SHETRONE: The Mound Builders. (<i>Bushnell</i>)(<i>Moorehead</i>)	421
BALLARD: Mythology of Southern Puget Sound. (<i>Demetracopoulou</i>)	426
STEWART: Petroglyphs of California and Adjoining States. (<i>Strong</i>)	427
SPIER and SAPIR: Wishram Ethnography. (<i>Strong</i>)	430
GIFFORD and BLOCK: Californian Indian Nights Entertainments. (<i>Benedict</i>)	432
NORDENSKIÖLD: Ars Americana; L'Archéologie du Bassin de L'Amazone. (<i>Mason</i>)	433
STEIGER, BEYER, and BENITEZ: A History of the Orient. (<i>Krom</i>)	435
POND: A Contribution to the Study of Prehistoric Man in Algeria, North Africa. (<i>ten Kate</i>)	438
STOW and BLEEK: Rock Paintings in South Africa. (<i>Renaud</i>)	440
WEINERT: Menschen der Vorzeit. (<i>Oettking</i>)	443
OETTEKING: Craniology of the North Pacific Coast. (<i>Hooton</i>)	444
SCHMIDT: Körperbau und Geisteskrankheit. (<i>Brues</i>)	446
FÜRST: Zur Anthropologie der prähistorischen Griechen in Argolis, nebst Beschreibungen einiger älteren Schädel aus historischer Zeit. (<i>Oettking</i>)	446
LAUFER: Geophagy. (<i>Dixon</i>)	450
BENDANN: Death Customs. (<i>Wissler</i>)	451
DUMÉZIL: Légendes sur les Nartes, suivies de cinq notes mythologiques. (<i>Du Bois</i>)	452
COLUM: Orpheus, Myths of the World. (<i>Benedict</i>)	452
LUQUET: L'Art primitif. (<i>Pond</i>)	625
PREUSS: Tod und Unsterblichkeit im Glauben der Naturvölker. (<i>Lowie</i>)	626
MÜLLER-LYER: The Family. (<i>Wallis</i>)	627
LIPPERT: Evolution of Culture. (<i>Du Bois</i>)	627
Tagungsberichte der Gesellschaft für Völkerkunde. (<i>Du Bois</i>)	628

BRIFFAULT: The Mothers. (<i>Lowie</i>).	630
MACLEOD: The American Indian Frontier. (<i>Wallis</i>)	631
GARDNER: Rock-Paintings of Northwest Cordoba. (<i>MacCurdy</i>)	631
GANN and THOMPSON: The History of the Maya. (<i>Martin</i>).	633
INNIS: The Fur Trade in Canada. (<i>MacLeod</i>)	634
BEYER: The Analysis of the Maya Hieroglyphs. (<i>Thompson</i>).	634
SCHRABISCH: Archaeology of Delaware River Valley, etc. (<i>Parker</i>)	634
GIFFEN: The Rôles of Men and Women in Eskimo Culture. (<i>Birket-Smith</i>)	635
NESBITT: The Ancient Mimbrenos, etc. (<i>Sauer</i>).	636
SHIROKOGOROFF: Social Organization of the Northern Tungus, etc. (<i>Lopatin</i>).	637
RATTRAY: Akan-Ashanti Folk-Tales. (<i>Cline</i>)	639
LEBZELTER: Die Vorgeschichte von Süd- und Südwest Afrika. (<i>MacCurdy</i>).	641
CHILDE: The Bronze Age. (<i>Fewkes</i>).	641
MACKENZIE: Scotland: The Ancient Kingdom. (<i>Robinson</i>)	642
KARST: Prolegomena Pelasgica. (<i>Faye</i>)	642
SPEISER: Mesopotamian Origins. (<i>Olmstead</i>)	644
BUDGE: Amulets and Superstitions. (<i>Lutz</i>).	645
SCHEIDT: Die rassistischen Verhältnisse in Nordeuropa. (<i>Shapiro</i>).	646
HRDLICKA: Children Who Run on All Fours. (<i>Oettking</i>)	647
REUTER: Race Mixture. (<i>Clements</i>)	649

DISCUSSION AND CORRESPONDENCE

Tobacco in New Guinea (Lewis), 134. Tobacco in New Guinea, An Epilogue (Laufer), 138. Recent Discoveries of Fossil Human Remains, 140. Pottery Implements of the Ancient Basket Makers (Weltfish), 263. White-on-Red Pottery from Cochiti Pueblo (Weltfish), 263. Dr. Merriam's "Tlô-hom-tah'-hoi" (Dixon), 264. The Spanish of the Chilam Balam de Chumayel, Yucatán (Schuller), 267. Prehistoric Pottery and Culture Relations in the Middle Gila (ten Kate), 268. Navaho Sand-Paintings (Armer), 657. Tobacco in New Guinea (Haddon), 657. Winnebago Beliefs Concerning the Dead (Densmore), 659. Early House Builders of the Brush Creek Region in Northeastern Utah (Reagan), 660.

ANTHROPOLOGICAL NOTES AND NEWS

Codex Vindobonensis Mexic. I., 141. Archaeological Survey of Eastern Colorado, 142. Identification of Botanical Material from Excavations, 143. Mandan Earth Lodge to be Reproduced, 143. Administration des Anthropos, 294. Alabama Museum of Natural History, 294. Bureau of American Ethnology, 294. Carnegie Institution of Washington, 295. Los Angeles Museum, 296. Field Museum of Natural History, 297. Metropolitan Museum of Art, 297. Museum of the American Indian, 298. National Museum of Canada, 298. Northwestern University, 298. Phillips Academy, 299. The San Diego Museum, 299. The Southwest Museum, 299. Tulane University, 300. United States National Museum, 301. University of Denver, 301. University of Kentucky, 302. University Museum of Pennsylvania, 303. Yale University, 306. American University of Beirut, 487. Bishop Museum, 487. Laboratory of Anthropology (Santa Fe), 488. Logan Museum, 488. Los Angeles Museum, 489. Social Science Research Council 1930-1931, 489. Tulane University, 491. Yale University, 492. Resolution for Mrs. Louise Welles Murray, 662. Palestine Rich in Relics of Prehistoric Races, 662.

MEETINGS AND REPORTS

American Anthropological Association for the year ending December 1930.	271
Committee on State Archaeological Surveys during 1930 (abstract)	283
Report to Constituent Societies on Work of the Social Science Research Council during the Past Year	284
American Ethnological Society	289
Anthropological Society of Washington	292
Auditing Committee	457
Archaeological Field Work in North America during 1930	459

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No. 1

THE PRESERVATION OF LOCAL TYPES OF WEAPONS AND OTHER OBJECTS IN WESTERN AUSTRALIA

By WILFRID D. HAMBLBY

DURING recent years Field Museum has acquired by collection, exchange, and purchase, a large series of weapons and other objects from West Australia. As is so frequently the case, fuller data would be welcome, but fortunately the objects are well localized. This makes a study of local types possible, and in general there is a remarkable preservation of regional peculiarities in respect to size, shape, and design. It is not proposed to enter upon a detailed discussion of the psychological, climatic, and geographical factors that tend to perpetuate certain types, but such factors are deserving of mention because of their creation and preservation of types which may with a little practice be readily referred each to its own locality. A glance at maps dealing with distribution of rainfall indicates that aridity may to some extent account for isolation. Again there is a well known conservatism of human nature tending to place a check on borrowing.¹ In some areas the presence of particular woods is no doubt an incentive to the elaboration of shapes and patterns which are distinctly in advance of those from other localities not far away (see fig. 7, p. 13). Proximity to the coast must give ideas and stimulating contacts, as will also the presence of a railway line. Primitive barter of spears, etc., likewise the meeting for tribal ceremonies,² and visits to outcrops of red ochre³ and quartzite,⁴ must all tend toward the determination and elaboration of local types.

The evidence here submitted shows very conclusively a preservation

¹ D. S. Davidson, *The Family Hunting Territory in Australia*, AA, 30: 614, 1928, and A. R. Brown, *JRAI*, 43: 148, 151.

² B. Spencer and F. J. Gillen, *Across Australia*, 2: 470 (London, 1912).

³ A. W. Howitt, *Native Tribes of South East Australia*, 712 (London, 1904).

⁴ R. Brough Smyth, *The Aborigines of Victoria, Warfare*, 1-47 (London, 1878).

of local types. In the absence of detailed information relating to West Australian aborigines⁵ the following descriptions and diagrams will no doubt be of practical use to ethnographers, especially those concerned with the classification and installation of material in museums.⁶

The principal places mentioned are: Kimberley (East and West);⁷ Murchison (Lower and Central); Ashburton;⁸ Kalgoorlie (Mount Margaret), Yilgarn; Pilbarra; and Broome (map 1).

In relation to these localities the following objects have been considered: yinmarries; whirlers; message sticks; spear-throwers; clubs; boomerangs; shields, spears.

All principal dimensions have been drawn to the scale mentioned on each diagram. The details of patterns are approximately to the same scale as the principal measurements. Fine lining and equidistant patterns would have been a misrepresentation of the objects. The crudity of drawing, where such exists, is an accurate representation of the coarseness of the actual workmanship.

PASSPORTS AND MESSAGE STICKS FROM WEST AUSTRALIA

All the examples in figure 1 are made from a hard yellow wood resembling boxwood in the fineness of grain. *a*, *b* are described as "passports." This term may be correctly used. While there is no definite information to justify its use in these instances, it is known that natives carry such sticks when obtaining stone from a region outside their own territory.⁹ Bands of aborigines visit outside their own territory to secure red ochre,

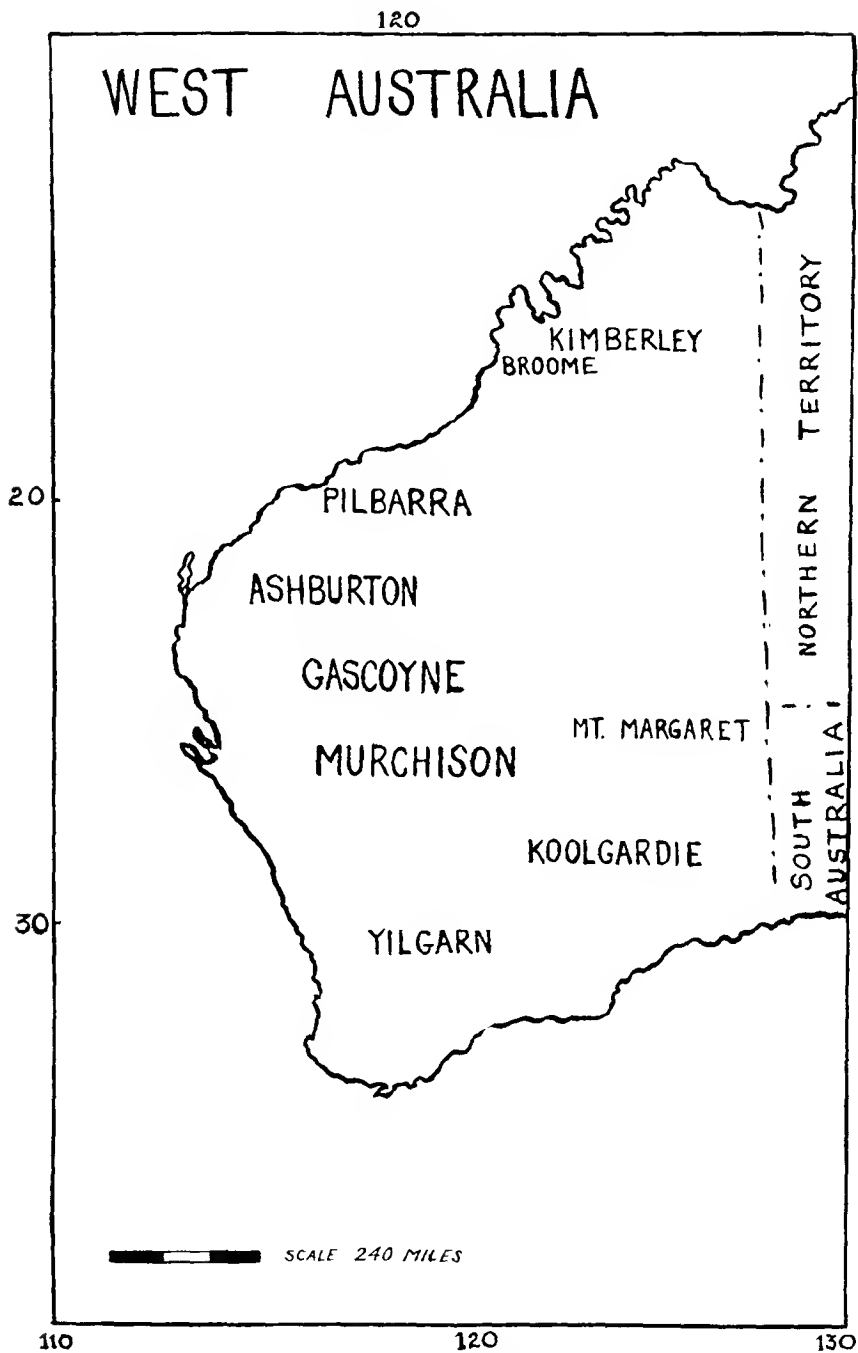
⁵ H. Klaatsch, *Schlussbericht über meine Reise nach Australien in den Jahren 1904-7*, ZE, 39: 635, 690, 1907. Also Samuel Wake, *Notes on the Aborigines of West Australia*, *Anthropologia*, 88-90, 1876.

⁶ *Australian Museum Handbooks* (Sydney). The illustrated catalogue of the Victoria Museum (Melbourne, 1922) contains illustrations of West Australian material. A. R. Brown, *Three Tribes of West Australia*, JRAI, 43: 143, 1913 (map, p. 193). E. Clement and J. D. E. Schmeltz, *Ethnographical Notes on the West Australian Aborigines*, IAE, v. 16, 1903. George Grey, *Journals of Two Expeditions of Discovery in N. W. and Western Australia in the Years 1837-9* 2 vols (London), 1841. L. A. D. Montague, *Weapons and Implements of Savage Races* (London), 1921.

⁷ E. T. Hardman, *Notes on a Collection of Native Weapons and Implements from Tropical Western Australia, Kimberley District*, Proc. Roy. Irish Acad., 3rd ser., vol. 1, no. 1, 1888.

⁸ E. M. Curr, *The Australian Race*, 1: 143 (Melbourne and London), 1886.

⁹ R. Brough Smyth says that when one or two natives were selected for the purpose of procuring diorite, they carried with them credentials showing exactly their object. This account relates to Victoria.



MAP 1 Principal places mentioned in descriptions.

therefore some "passport" may be necessary. When calling groups to assemble for initiation or other ceremonies such sticks may be carried. The meaning of the details of design is unknown. The pattern on *g*, possibly also the designs on *e*, represent a snake. The snake plays an important part in some totemic and initiation ceremonies, while folk-lore is largely

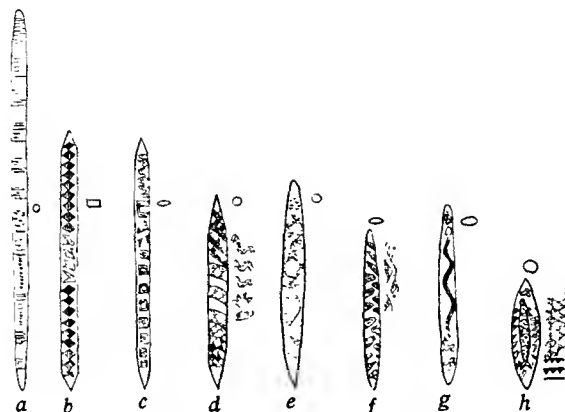


FIG. 1. Passports and message sticks from West Australia. Scale 1/4.

concerned with snake-like monsters which inhabit water holes.¹⁰ With the exception of *d*, *f*, *h* the designs are almost identical on both sides of the stick. The small drawings inset on the right of these drawings show the prevailing pattern on the reverse side. As indicated on figure 1, four of the sticks are round in cross-section, three are oval, and one is rectangular.

YINMARRIES, WHIRLERS, AND CHURINGA FROM WEST AUSTRALIA

The aborigines reserve their most painstaking efforts for the incised decoration of the whirlers and churinga (see fig. 2). The distinction between the two classes appears to be in the provision of a small round hole at the end of each whirler, which has a cord attached. The cord is, I believe, a mixture of finely shredded bark and native human hair.

Specimens shown as *a-c* in figure 2 are from Ashburton. All are plano-convex with well planned, incised decoration on the flat side only. *d* and *e* are churingas from Broome, typical of a collection of four. They are incised on one side only. *f* is a single example of a churinga from Kimberley which is liberally smeared with red ochre. The specimen has similar decoration on both sides. *j-n* are examples from Central Murchison. All

¹⁰ A. R. Brown, *Rainbow Snake Myths of Australia*, JRAI, 56, 19, 1926

are flat on one side and convex on the other. The incised lines are on the flat side only in each example. The wood is of a hard red variety which has had its natural color somewhat changed by applications of red ochre. *i* and

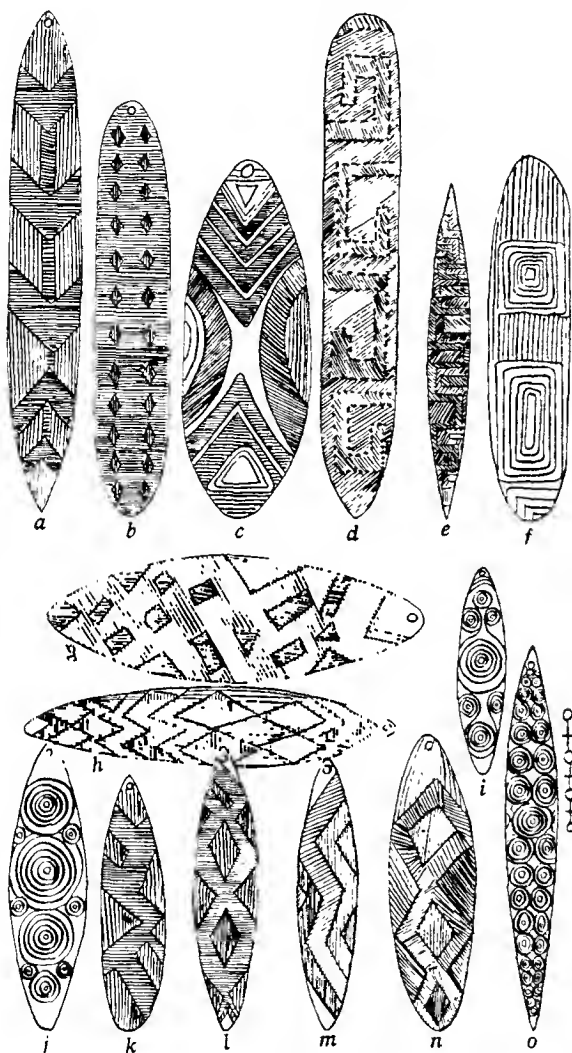


FIG. 2 Whirlers and churinga from West Australia. Scale. 1 2.

o are both whirlers from Mount Margaret, Kalgoorlie. The design is repeated on each side. The form is bi-convex. *g* and *h* are whirlers from Gascoyne river. The form is plano-convex with incised ornament on the flat side only. Both are made of hard red wood.

In connection with the churinga should be mentioned a number of "yinmarries," or "ceremonial slabs." The uses of the Australian churinga have been described by several authors; presumably the "yinmarrie" is employed in the same way. In the absence of definite information one surmises that the ceremonial slab is, like the churinga, hidden away in some place known only to the tribal elders. On ceremonial occasions the yinmarrie may be brought out and decorated, possibly with blood and feathers. An account of the ceremonial significance of these yinmarries would be a welcome addition to the Museum's data. These long oval slabs of dark reddish-brown wood are deeply incised with criss-cross lines like those shown on the bullroarers (whirlers), and churinga. The slabs, six in number, vary in length from 58 cm. to 78 cm. The yinmarries from Central Murchison are easily distinguishable, as their length in each case is about twice the length of the other Murchison types. The lengths of the yinmarries from Central Murchison are 156, 113, and 146 cm., respectively. The average breadth of the Murchison yinmarries is 7.5 cm. The examples of these so-called "sacred slabs," from Mount Margaret, Kalgoorlie, are particularly long and well incised. The general form is a long narrow oval with straight sides. The six examples vary in length from 247 cm. to 72 cm. The patterns are on the concave side only.

SEAR-THROWERS FROM WEST AUSTRALIA

The Kimberley type shown as *a* in figure 3 is one of four almost identical specimens from that locality. The dimensions are 91, 96, 96, and 107 cm., thus indicating great uniformity of construction. The wood is very light in texture and shows a coarse open grain. The color is light brown. There is no decoration. The weapon is flat on both sides. The curved peg of semi-oval form is bound with gum and sinew, the latter being lashed round the middle of the peg, which is of wood. The tooth of a kangaroo does not appear to have been used in any of these examples and the sinew lashing passes round the curvature.

The type from Central and Lower Murchison (fig. 3*b*) is a long narrow pattern which might be described as oval except for the flattened sides. At the end which is gripped by the thrower there is a large oval mass of black gum. The side on which the peg is lashed is quite flat, while the reverse side is slightly convex. This is one of four examples of almost exactly the same lengths and breadths (74 cm. \times 6.5 cm.).

The Pilbarra, Ashburton type (fig. 3*c*) is one of four examples of uniform dimensions. The deeply incised patterns vary on different specimens,

as indicated by the small inset drawings to the right of *c*. Decoration is confined to the peg side, which is flat or very slightly concave.

The type from the Eastern District (fig. 3*d*) is made from a thin slab of hard red wood very like mahogany in grain and general appearance. The peg side is flat. The reverse side is slightly convex. Four examples are of almost identical measurement. No incised or other ornament is present.

Figure 3*e* is a type of eight examples from Mount Margaret, Kalgoorlie. The incised decorations are confined to the hook (peg) side, which in seven instances out of the eight is deeply concave. All are convex on the reverse

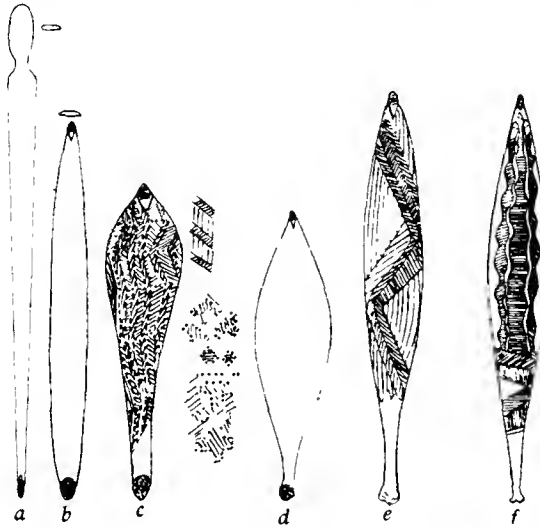


FIG. 3. Spear-throwers from West Australia. Scale 1/5

side. In all instances the pegs are bound with sinew, but in two instances there has been no addition of gum to cement the binding. Four of the specimens have a big lump of black gum at the grip. Four have a plain wooden finish, without the oval lump of gum found on the majority of spear-throwers, no matter what their general design may be. In the collection there are two examples from Lakeway, East Murchison, which conform very closely in all respects to *c* (Kalgoorlie type).

Figure 3*f* is said to be from the Murchison division, and is the best example of aboriginal art in the Museum's collection from West Australia. Usually the worker becomes confused in his attempts to carry out a design. Here, however, there was a clear concept of three snakes whose

heads are close together at the peg end of the thrower. The artist has been successful in creating an illusion. The observer may see either two very narrow snakes or three broad ones. The number of heads clearly indicates that the designer intended the pattern to represent three snakes. The incisions are very deeply cut in hard wood of a natural reddish brown color.

BOOMERANGS AND CLUBS FROM WEST AUSTRALIA

The table (page 10) indicates the data used in preparation of figure 4. The measurements were made by laying each boomerang in turn on a sheet of white paper marked in square centimeters. By "curvature" is meant the height of the arch from the base line. In each case the height of the arch was measured, from the base line joining the tips, to the lower curve of the arch. The breadth is in each instance the maximum. In relation to curvature, length, and breadth, figures have been given to indicate the "range of measurements." There is, on the whole, great consistency within any given group. I do not possess sufficient skill to judge the respective powers of flight and returning qualities. So far as inspection may be trusted all are fighting boomerangs with the possible exception of *c*, *h*, *j*, *k*. Specimens *c* and *h* appear to have their halves in slightly different planes. *j* and *k* are quite flat, covered with red ochre, and painted crosswise with broad white stripes. Possibly the Museum catalogue correctly describes them as ceremonial. *k* shows the result of considering all the painted Kimberley boomerangs as one group. Inspection, verified by measurement, indicates that the twelve examples are divided into two groups with six examples in each. The principle of division is the height of the arch of curvature. Type B has a very high arch, while that of type A is considerably flatter. The group of nine boomerangs, marked "Kimberley" in the Museum catalogue, are undecorated. Their average form is indicated in *l*.

A large number (16) of clubs from Pilbarra, Ashburton, Gascoyne, and Murchison, are of very uniform construction and design. If these specimens were mingled, there would be great difficulty in resorting them. The length is almost invariably 70 cm., and the thickness 3 cm. The clubs are cylindrical in form and are fluted with deep incisions from the thicker end to the grip which is about 10 cm. long. A few irregular incisions are made to give a firm hold. Each of two such clubs from Central Murchison has a rounded quartzite chisel fixed into the end of the club with black gum. Two clubs from Yilgarn (S. E. of West Australia) conform to the general pattern. They are, however, distinguishable by their yellowish color and more slender form. Two clubs from East Kimberley are easily distin-

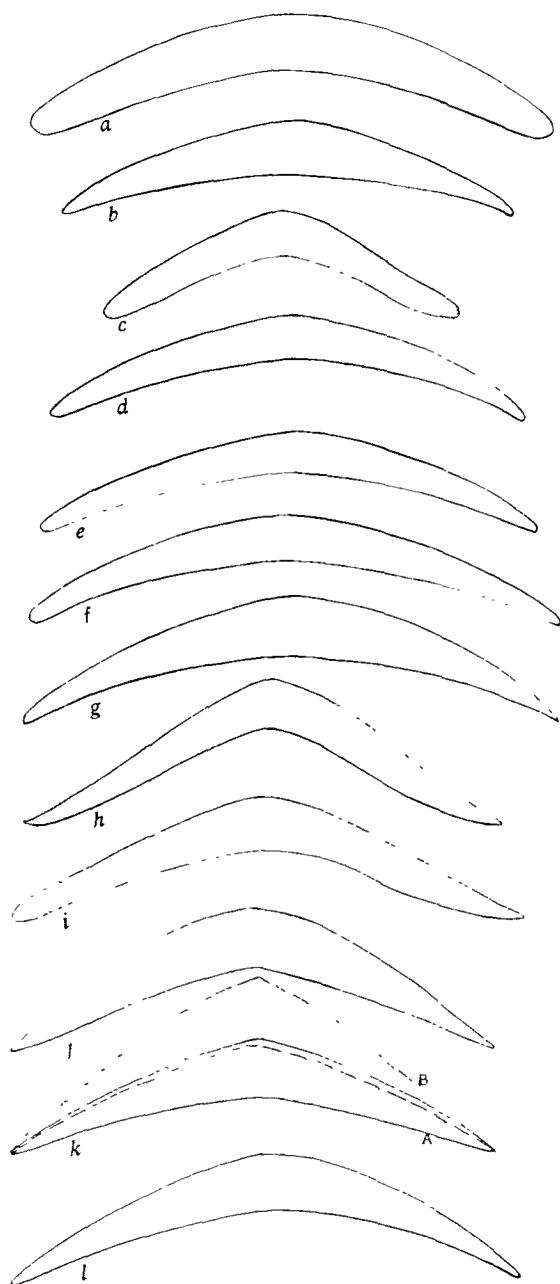


FIG. 4. Boomerangs from West Australia. *a* Upper Murchison Gascoyne; *b*, Murchison, type A; *c*, Murchison, type B; *d* Central Murchison; *e*, Lower Murchison; *f*, Ashburton; *g*, Broome; *h*, East York, Yilgarn; *i*, Mount Margaret, Kalgoorlie; *j*, Kimberley (decorated); *k*, Kimberley (types A and B—both decorated); *l*, Kimberley. Scale $\times 1.3$.

District	No. of examples meas- ured	Average curvature and range	Average length and range	Average breadth and range	Remarks
Upper Murchison Gascoyne	12	7.8 6.3-8.5	62.2 58-68	6.4 6.7-5	
Murchison division	2 type A	5.0 4.3	53 53	6.0 6.5	Boomerangs for musical corroborees. The instru- ments are called "Kileys."
	2 type B	6.0 9.0	44 40	4.5 5.5	As there were only four ex- amples the actual measure- ments of each are given.
Central Murchison	8	7.2 4.5-9.5	56.1 54-60	5.1 4.5-6	Breadth is very consistent
Lower Murchison	9	7.1 5.5-9	58.4 54-64	4.9 4.5-5	Breadth is very consistent
Ashburton	12	7.6 6.5-9	62 55-68	5.2 4-6.5	
Broome	2	8 7.5	64 62	6.5 6.0	As there were only two examples measurements of each are given. The two appear identical until measured.
East district, York Yilgarn	7	11.3 9-14	56.4 47-67	5.3 4.5-6.5	
Mount Margaret Kalgoorlie	6	8.3 6.5-10	60.7 56-65	6.0 5.5-6.5	Very consistent in width.
East and West Kim- berley	12	9.4 6.0-15.0	57.1 45-66	7.0 5.0-8.5	There are two distinct types in this section. These have been separately ex- amined as A and B. All are reddened and painted with stripes.
	type A 6	6.3 6-7	57 52-64	6.5 5-8	All said to be for ceremon- ial use only.
	type B 6	12.5 9-14	57.2 45-64	7.4 6.2-8.5	Said to be for ceremonial use only.
East and West Kim- berley	9	8.1 6.0-11.0	59 54-70	6.4 5.5-7.0	Again there appear to be two types, A and B, but not so well defined as the ceremonial forms.

guished from all others. In the first place they are only slightly fluted, whereas all the others have deep longitudinal grooves. Their size, too, serves to distinguish them. One is 115 cm. long and 6 cm. thick, quite a formidable and heavy weapon. The other is 90 cm. long and 4 cm. thick.

TYPES OF SHIELDS FROM WEST AUSTRALIA

Wooden shields are observed to vary so much in local form and decorative design that reclassification could be easily made if the specimens from all localities were mingled. The areas represented are Ashburton, Broome, Kimberley, Kalgoorlie, and Central Murchison. The diagrams in figure 5 indicate the most noticeable differences of the types.

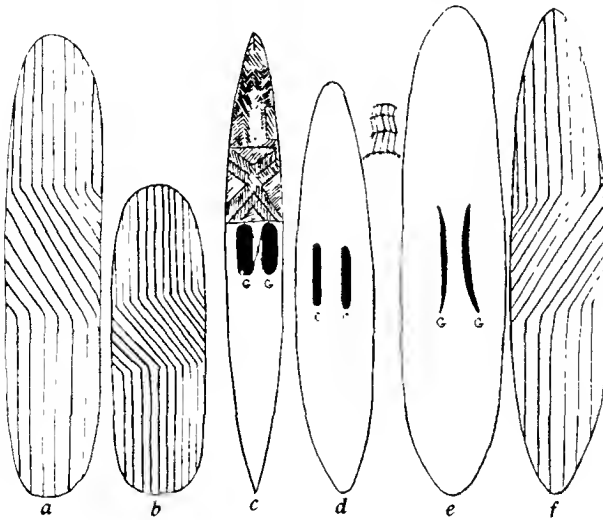


FIG. 5 Shields from West Australia Scale 1/5

The average dimensions of five Ashburton shields like *a* are 90 cm. \times 17 cm. The front of the shield is ornamented by deep, wide grooves that are painted alternately white and red, with lime (?) and red ochre. One of the shields is flat on both sides, but the remainder are slightly concavo-convex. The grip, situated on the concave side, is a strong, prominent, wooden, loop carved from the matrix of the shield. The ends are very round in form.

The general form of the Kalgoorlie shield (*b*) is somewhat similar to that of the Ashburton type. The former pattern is, however, shorter and broader than the latter type. Three examples from Kalgoorlie have an average length of 65 cm. and an average breadth of 19 cm. The fluting,

coloring, and grip are almost identical with those items of the Ashburton type.

Two shields from Broome of the pattern shown in *c* are easily distinguishable from all other shields of West Australia so far as the Museum collection is concerned. The examples measure 55 cm.×9 cm., and 89 cm.×11 cm., respectively. The Broome shield may be distinguished by the thickness of the wood, its density, and dark chocolate color. The fine incised work covers the whole face of the grip side of the shield. The shield is of a parrying type, being, one would imagine, too narrow to intercept missiles. The black patches (G. G.) indicate two deep holes of the sunken grip, which has a bridge of wood between the hollows.

Four shields, like *d* from Kimberley, have average dimensions of 77 cm.×16 cm. The grip is of the sunken pattern. The thickness through the center of the shield is about 7 cm., consequently this is a heavy type of shield, especially in comparison with *a* and *b*, in which the wood has a uniform thickness of about 3 cm. The Kimberley shield has a curvature so great that it has a boat-like appearance when placed on its convex side.

Specimens *e* and *f* illustrate the grip side and the face of the type of shield common in Central Murchison. The grip (G. G.) is of the raised type. The broad grooves of *a*, *b*, and *f* are similar in structure and coloring. Alternating colors of white and red have been painted along the grooves of each of these types. *f* is distinguished from *b* by its greater length and smaller width. In addition to this *f* is distinguishable from both *a* and *b* by its pointed ends. There are six examples of this Murchison type (*f*). The average length is 77 cm. and the width 17 cm.

An inspection of *a*, *b* and *f* shows that in *a* and *b* the grooves on the shield cross over from left to right in the middle of the face. On the contrary the grooves on *f* cross from right to left. I am informed that the left to right grooves have been cut by a right-handed man. A left-handed man cuts the grooves from right to left when he reaches the middle of the shield.

SPEAR TYPES FROM WESTERN AUSTRALIA

Murchison Gascoyne region (fig. 6.—*a*, spearhead of hard, dark red wood with four large barbs. Narrow oval in cross-section. *b*, eleven barbs somewhat irregularly carved. A spearhead only with two circular holes at the base. *c*, spearhead only, six barbs of downward curvature, hard yellow wood, groups of black incised lines round the shaft. *d*, one downward barb carved from the matrix of the spear, no binding, repair work of sinew and gum on the shaft. *h*, one barb of wood bound with sinew and gum to a shaft 243 cm. long. The shaft is slender. There is a tapering toward the butt, which has a small round hole for the hook of the spear-thrower.

Lower Central Murchison.—*g*, plain wooden spear with an irregular shaft 250 cm. long. The butt portion is of bamboo having nodes and a hollow stem, into which the foreshaft is socketed and tightly bound at point *j*. *e*, plain wooden spear with an irregular sinuous shaft, which is worked down from circular form to a flattened oval near the point. Hard wood of reddish color has been used. There is a circular notch for the hook

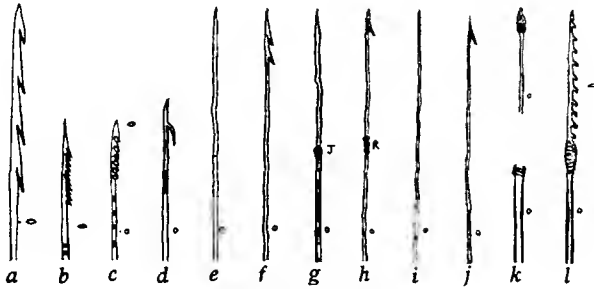


FIG. 6. Spears from West Australia.

of the thrower. Length 236 cm. *f*, the spear shaft, 268 cm. long, is made from fairly heavy, light brown wood. Two barbs are carved from the matrix; these barbs are without binding. There is no notch for the hook of a spear-thrower.

Southeast of West Australia.—*i*, very light spear of reddish brown wood, extremely slender at the butt, which has a deep circular notch for the

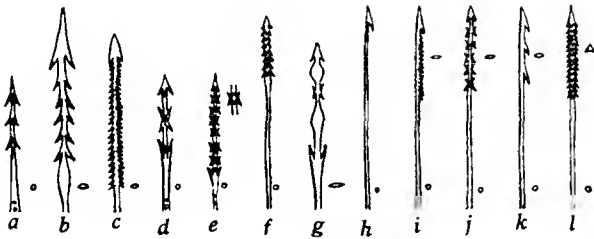


FIG. 7. Spears from Ashburton, West Australia. Scale *a-g*, 1, 10; *h-l*, 1 25.

thrower's hook. A distance of 15 cm. from the point is covered with hard black gum. Length 232 cm. *j*, very slender throwing-spear 242 cm. long. The one wooden barb is bound with sinew and wax.

Kimberley.—*k*, this is representative of a series of 16 spears from this region. The heads are of the well-known flaked glass and quartzite type. An oval lump of black gum attaches the head to the shaft. The fore part

of the shaft is extremely light in weight; it fits into a hollow bamboo butt portion which has a deep indentation for the hook of the thrower.

Northern territory of South Australia.—*l*, the twelve-barbed head is made from hard red wood. The fore part is socketed into a hollow reed-like shaft. Total length 273 cm.; length of fore part is 52 cm. The junction of the two parts of the spear is bound with fine sinew and covered with gum.

Ashburton.—The twelve examples in figure 7 illustrate a well developed local type of spear, whose technique is far in advance of that from any other part of West Australia. In no instance are the barbs bound with sinew or fastened with gum. On the contrary the barbs are carefully carved from the matrix. *a-g* are spear heads only. There seems to be little probability that they could have been used with a spear-thrower. Apparently they were, when shafted, of a heavy thrusting type. *h-l* are complete with somewhat heavy shafts. The length is about 260 cm., with only slight variation from this mean. Some are round and others are oval in cross-section as indicated in the diagram.

a, barbs in groups numbering 4, 3, 2, from above downward. *b*, a very flattened spearhead with six pairs of well carved barbs. *c*, has 28 pairs of barbs somewhat irregularly cut. *d*, the barbs are arranged in three groups of four barbs in each group. *e*, there are eight groups of barbs with four barbs in each group. The spear has the appearance of being decorated with rosettes. *f*, there are eight groups of barbs with four barbs in each group. *g*, this is a broad flat type possibly for ceremonial use. At the bases of *a*, *d*, *e*, there are circular holes. These may have been used for lashing the head to a shaft. *h*, there is one barb only. This is carved from the matrix and is unsupported by lashing or gum. The round shaft is considerably flattened toward the barbed portion. *i*, there are 18 barbs having a downward trend. The shaft tapers toward the butt. There is no depression for the hook of a thrower. *j*, an extremely heavy spear with five pairs of barbs. *k*, there are three barbs cut from the matrix of the spear. The butt tapers considerably, but there is no provision for the hook of the spear-thrower. *l*, the only spear with a head which is triangular in cross-section. There are 18 groups of barbs with three barbs in each group.

In conclusion one may say that local differences are preserved remarkably well. The points on which further information is desirable are:

(1) The properties of flight of the different types of boomerangs, and the occurrence and distribution of the fighting and returning types in West Australia.

(2) The meaning of the word "yinmarrie" as applied to the flat slabs of wood, said in Museum records to be "ceremonial slabs."

(3) The reason for the much finer work on objects from Broome. The better workmanship may be due to the presence of a hard wood which gives good results when finely grooved.

(4) The various uses of passports and message sticks, and the symbolism of the marks on these.

(5) The reasons for the development of such elaborate spearheads in Ashburton. Those shown have no rivals in the West Australian collection, at Field Museum.

FIELD MUSEUM OF NATURAL HISTORY,
CHICAGO, ILLINOIS

NOTES ON THE ARCHAEOLOGY OF CENTRAL TEXAS

By FRANK BRYAN

THESE notes are intended to be little more than the presentation of data with a few opinions based thereon. The writer is hardly more than an amateur archaeologist and is acquainted with a very limited area. However, his profession, that of an oil geologist, has given him a chance to cover an area of some 400 square miles very thoroughly. Over a large portion of this area the geology has been mapped in close detail. Almost every acre of ground has been covered and every small gully walked out in searching for outcrops.

Throughout this geological work a more or less casual search of the ground as it passed under foot has been kept up. This search was for any change in soil that might suggest a change in geological formations, and for any stones and flints that might have been shaped by man. At first the interest was in the chipped flint and stone implements and their wide distribution. After several hundred had been found, it was seen that they could be divided into several general groups based on the kind of stone, shape of the implements, and color. Then it was also noticed that all the classes were distributed in about equal numbers over this area, and that generally speaking, the arrowheads found on the hills were all pretty much alike, and those found in the valleys were alike, but between the two groups there was a very marked difference.

That arrowheads found away from the streams and on the hills differed from those of the valleys and near the streams led to the supposition that they belonged to different ages. That the former were the older was inferred from the very marked difference in patina. This led to the conclusion that the upper and older arrowheads belonged to the old stream terraces in which they were discovered, although all were found on top of the ground, as no digging has been done. Some of the terraces are about 75 feet above the present streams, and that means that the whole country has been eroded that distance since the streams were where the terraces are now.

The area of some 400 square miles that has been covered in close detail, and which will be referred to as "this area," lies in about the center of the state of Texas and covers practically all of McLennan, Hill, Limestone, and Navarro counties. When any other areas are mentioned, they will be located in detail.

The geological formations outcropping at the surface over this area are of Cretaceous age and consist principally of soft beds of marls and clays

with occasional harder beds of chalk and sandstone. None of the harder beds are as hard as ordinary limestone, and compared with the marl and clay beds they are very thin, the Austin Chalk, with a thickness of some 300 feet, being by far the thickest.

Structurally the area is monoclinal with an average east dip, south 60 degrees east to be exact, of about 60 feet to the mile. This general east dip is arrested and broken up in local areas by faults. These faults run about parallel to the strike of the Cretaceous beds and vary in length from half a mile to fifteen miles. The throw varies from a few feet to some 600 or more in places. The larger faults are caused by the settling of large wedge-shaped blocks with a fault on each side of the blocks. These down blocks vary in width from one to five miles and the faults on the sides usually run parallel to each other, but in places they come together giving the block a boat-like end.

Not only do these fault blocks hold the key to the oil deposits—the oil is dammed up against their east edges—but they hold the key to the antiquity of man in this area and perhaps on the North American continent. Some of the Quaternary sand and gravel deposits, which contain artifacts in place in stratified beds, have been faulted down from 25 to 100 feet since the artifacts were dropped in the gravel. By drilling oil wells around and through these faults it has been found that they started back in the Cretaceous, and that there is probably still some faulting going on. One 600-foot fault was faulted some 350 feet in Cretaceous times and the remaining 250 feet in post-Eocene times. This is about the average of the ones on which exact measurements can be had. This fault is in the east edge of this area where enough Eocene has been pulled down to afford a measurement of them. The Eocene overlaps the Cretaceous in the eastern edge of this area, covering a goodly portion of the east halves of Limestone and Navarro counties.

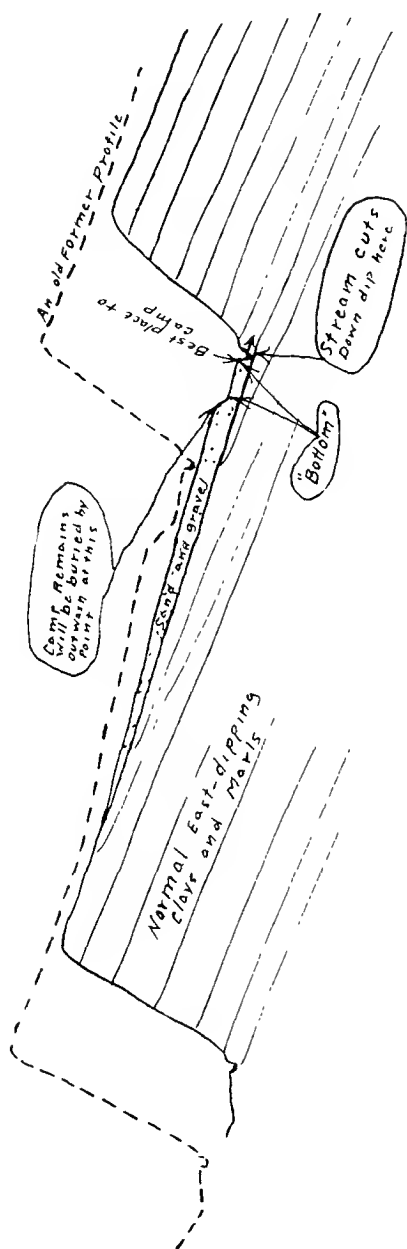
The stratified sand and gravel deposits, in which artifacts have been found in place, are in the big down-faulted block north of Waco in McLennan county. Over that block comparatively thick Quaternary deposits are to be found. They can be divided into some three separate stages and are not present over normal dipping unfaulted areas. These stratified beds have a thickness of about 150 feet on White Rock creek, about 4 miles north of Waco, where the Waco-Gholson road crosses that creek. An old gravel pit here is the only place where the thickness can be measured with any degree of accuracy, and it is doubtful if the full thickness is present there. The walls around this old pit stand a little steeper than the angle of repose, and in them all the different strata and stages of the deposition of the Quaternary

deposits can be easily seen. From the way these particular Quaternary beds are limited in area to the down-faulted block, it is probable that the block either settled and attracted the drainage from the surrounding area or, as the country as a whole was being lifted up, the blocks merely lagged behind, which would give the same results. The area of the down-faulted block was filled in with over 150 feet of quicksand and gravel in well stratified deposits, certainly mainly deposited in a lake or arm of the sea.

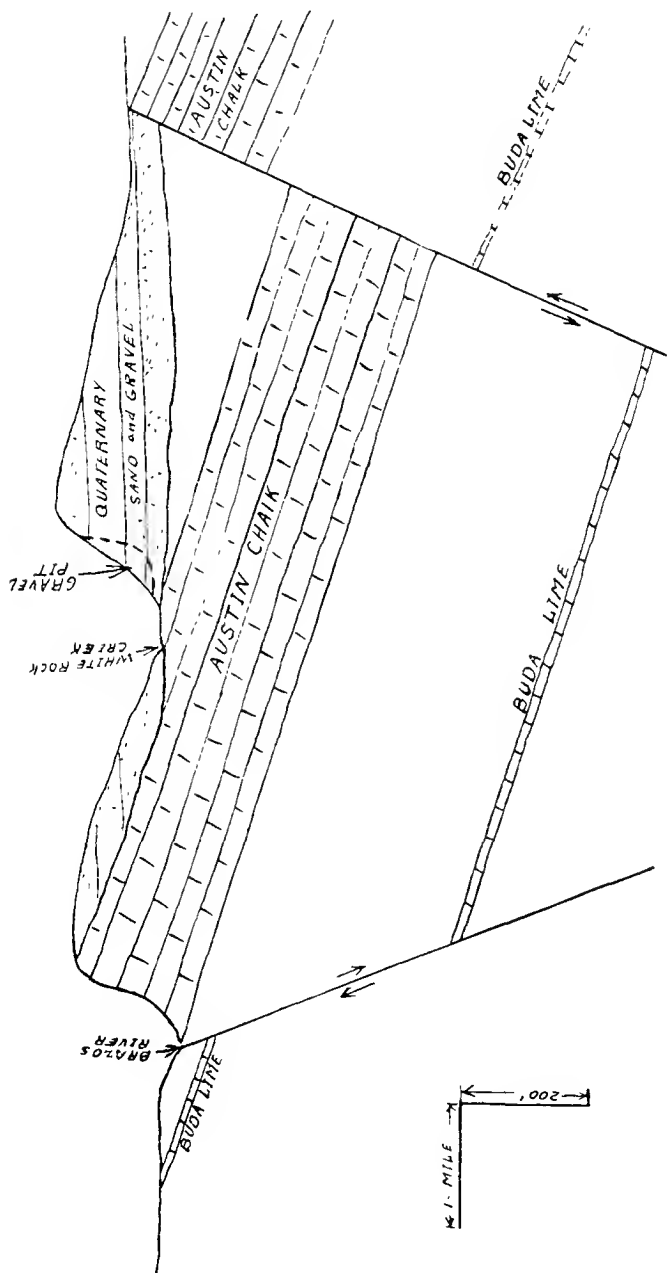
Some of the quicksand beds were probably only periodically covered with water during their deposition, or else they were marshes covered with very shallow water. Whichever was the case they proved to be regular death traps for the mammoth. There are so many remains of these giant elephants in this limited area of Quaternary deposits and, they are so well preserved, that they are certainly not the results of ordinary deaths. Some of these "dead-sand" strata—to use the technical name of the pit workers because the sand grains are too round to use in cement—have a number of the carcasses preserved almost intact. The outline of the full swollen body is plainly to be seen just as though it had sunk in the quicksand and was completely covered up before decay set in. These same quicksand beds contain occasional flints that are believed to have been shaped by man.

Subsequent to the deposition of the sand and gravel beds over the fault blocks, the faulted blocks took up the upward movement along with the surrounding beds. This upward movement exposed the soft sand and partially consolidated gravels to the full action of the elements. Some of the gravel beds have resisted erosion better than the surrounding Cretaceous marls and now are the highest hills in the country. The highest of these hills are fully 200 feet above the bed of the Brazos river and the upper 150 feet is all Quaternary sand and gravel. This thickness is a little less than half the average throw of the faults on either side of the block.

The best place to study the details of the deposition of these Quaternary beds and hunt through them for human remains is in the old gravel pits at the Waco-Gholson road crossing on White Rock creek. Here some 100 feet of them are exposed in good walls in three old horseshoe-shaped pits. These gravel pits are about the center of the down-faulted area. The fault on the west side of the block emerges from the Brazos river at "The Chalk Bluffs" and some eight miles northeast it goes through the town of West. South from "Chalk Bluffs" it follows the bed of the Brazos to the bend at the old town of Bosqueville. There it cuts across a neck of land to the Bosque and follows up the Bosque bottom until it dies out almost six miles farther on. It has a maximum throw of about 600 feet nearly three miles north of Chalk Bluffs.



Map 1. Type section across normal unfaulted areas. The dip slope hills average about 2 miles long and 150 feet higher than the bottoms. The sand and gravel, terrace deposits, creep down dip behind the streams.



Map. 2. Section across White Rock creek gravel pit.

The east fault is hard to follow as no good exposures can be found, but it can be traced out on correlation and follows close to the International and Great Northern Railroad all the way from the southern part of Waco to Leroy. It has some 300 feet of throw at Leroy.

White Rock creek drains much of the west half of the thickest Quaternary beds. The portion of its drainage area that is covered with the thick beds of Quaternary is very different from the normal unfaulted areas. Here the almost level beds of uniform hardness from top to bottom are cut into all kinds of odd-shaped hills which are about the same height on both sides of the creek. All parts of these hills are covered with trees. In the normal areas where the east-dipping strata are undisturbed by faulting the harder beds hold up long dipslope hills with steep escarpments facing the west that are usually barren of trees. (See map 1.) The east or dipslope sides are from one to five miles long and slope down at less than 50 feet to the mile on an average. These long gentle slopes are fairly open rolling prairies.

In the high walls of the White Rock gravel pits all the sand and gravel beds can be measured and studied in close detail. (See map 2.) The lower half seem to be débris from the surrounding Cretaceous beds, then there is a fairly sudden change to a Cretaceous and Permian mixture. It looks as though the Brazos or its predecessor did a little piracy and stole the head off some stream that reached out into the Permian beds that outcrop some 100 miles to the west. There seems to have been considerable variation in the size of the streams at different times. In places there will be as much as 15 feet of pure sand, then as much coarse gravel, and then another bed of sand, and so on up. The sand is all well rounded and was no doubt quite quicksandish when saturated with water.

Two lower sand beds contain the mammoth remains. The remains of the carcasses are little more than casts. Even the bones are soft enough to crumble between the fingers. The teeth are the only remains that are well enough preserved to be gotten out whole. They vary in size from no larger than a man's fist to over a foot long.

In the lower sand strata and the one that contains the greatest abundance of mammoth remains are found occasional flint fragments which vary in size from one to six inches long. Some of the smaller flints are weathered flakes and one has a faint percussion bulb on one edge. The larger flint stones have been broken or flaked off on all sides and resemble the larger flints found in the known prehistoric village sites of the country. They look like cores from which flakes have been broken off.

The writer bases his beliefs that these stones were shaped by human hands on the following facts. First, they are geological misfits. That is,

large stones weighing several pounds are not washed in for miles and deposited in the middle of beds of soft sand. Water-washed material is pretty well sized in transit, and large stones require swift currents and usually stay together for that reason. Careful study of the strata in which these stones are found shows no evidence of unusual currents that would account for the dumping of the large stones. Second, the ridges between the flaked-off faces are still sharp and show no evidence of having been washed and rolled about. If these stones were shaped by nature they would have been crushed and broken and have been in company with an accumulation of other large stones.

The same stones that applied the pressure necessary to flake off faces on all sides, some of them five inches and longer, would have ground down the angles between the faces, or else the angles would have been worn somewhat in transit. This is not the case. The faces on all sides are large and some of them show the indenture of percussion bulbs, and the angular ridges between the faces are still just as sharp as when the faces were flaked off. Third, they are foreign to the coarse gravel both above and below the sand beds in which they are found. None of the Quaternary beds exposed contain a large amount of flint stones. These occasional supposed artifacts are all the flints to be found.

If these stones were dropped by man, they were dropped a long time ago. The oldest have been covered by not less than 100 feet of the remaining Quaternary sediments, which were deposited during a local or regional depression. During or after a subsequent elevation of the region at least 250 feet of the strata has been eroded by the streams which are now this distance below the top of the Quaternary beds. The actual deposition and erosion exceeded these figures by the thickness of Quaternary deposits which have been washed off the tops of the hills.

The flints from these Quaternary beds, so far discussed, carry an element of doubt as they are not of the conventional forms. The lowest flint tool that is unquestionably man-made was found in a gravel bed some forty feet down from the top. It has the same age as those just discussed less some 60 feet of deposition. This tool is a form of knife some five inches long by one and one-half inch wide and three-eighths of an inch thick. It was broken in half to study the patina and the unaltered elliptical core was found to be less than 1/8th of an inch thick.

The unaltered core stands out readily to the eye. The patina is fully 1/8th of an inch thick. This knife is the oldest artifact the writer has found in stratified deposits. However, he has others that show a much greater degree of patination and from the position in which they were found he believes that they are at least as old.

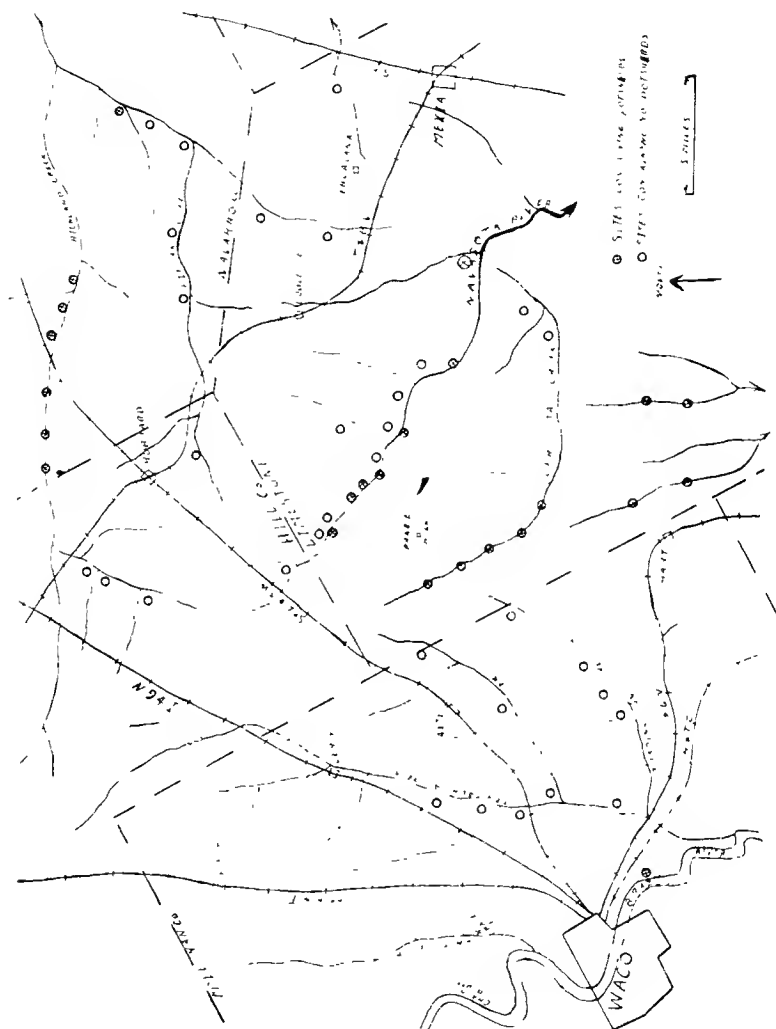
Anyone who visits the White Rock gravel pits can observe a reddish sand stratum in the bank on the north side of the road. The knife just described came from the base of that stratum about 50 feet from the west end of the bank.

The best place in this area for one interested in the age of the artifacts to search for them is in this old gravel pit. Artifacts once found can have their history measured about as accurately as it is possible to measure geological history. However, that does not mean that the normal unfaulted areas are the less interesting and that the specimens found in them are younger.

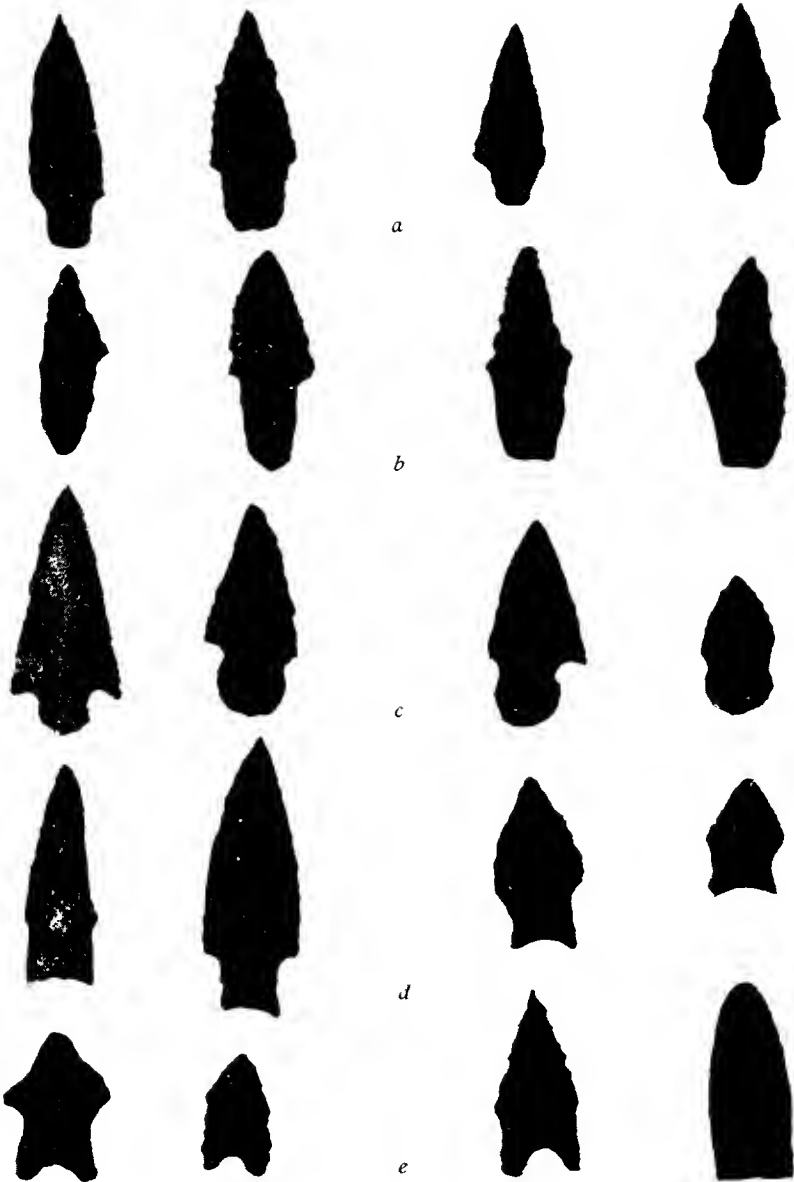
The undisturbed areas present entirely different problems. In them are to be found numerous old village or camp sites. Some 200 have been discovered and mapped to date. (See map 3.) These sites have an abundance of all the numerous flint and stone tools and projectile points common to Stone Age man the world over. Almost every type found in the largest museums of the United States and Europe can be duplicated here. Practically none of these old sites have been more than casually searched for artifacts. They are a collector's paradise, as field-hunting yields bigger bags, by far, than could be had by excavating. As an example, in two hours searching of the surface of one of these sites over 150 perfect arrowheads were found and twice that number of other tools, to say nothing of broken points and pot fragments.

Some of the arrowheads and drills, etc., are the work of artists and represent the highest skill in the art of chipping flint, while others were very plainly the work of clumsy hands. They range in age from sites that are on the very banks of the present streams to terraces near the tops of the hills. Some of the latter are immediately post-glacial, if not glacial or earlier. They can be divided readily into four ages on geological position substantiated by the shape of the arrowheads, the patina, and the material used. The last two general ages can be subdivided into about ten more cultural periods on shape and material. These cultural periods may represent only wandering tribes that used material from different sources and each having a conventional form of its own. It would take more detailed study to determine this.

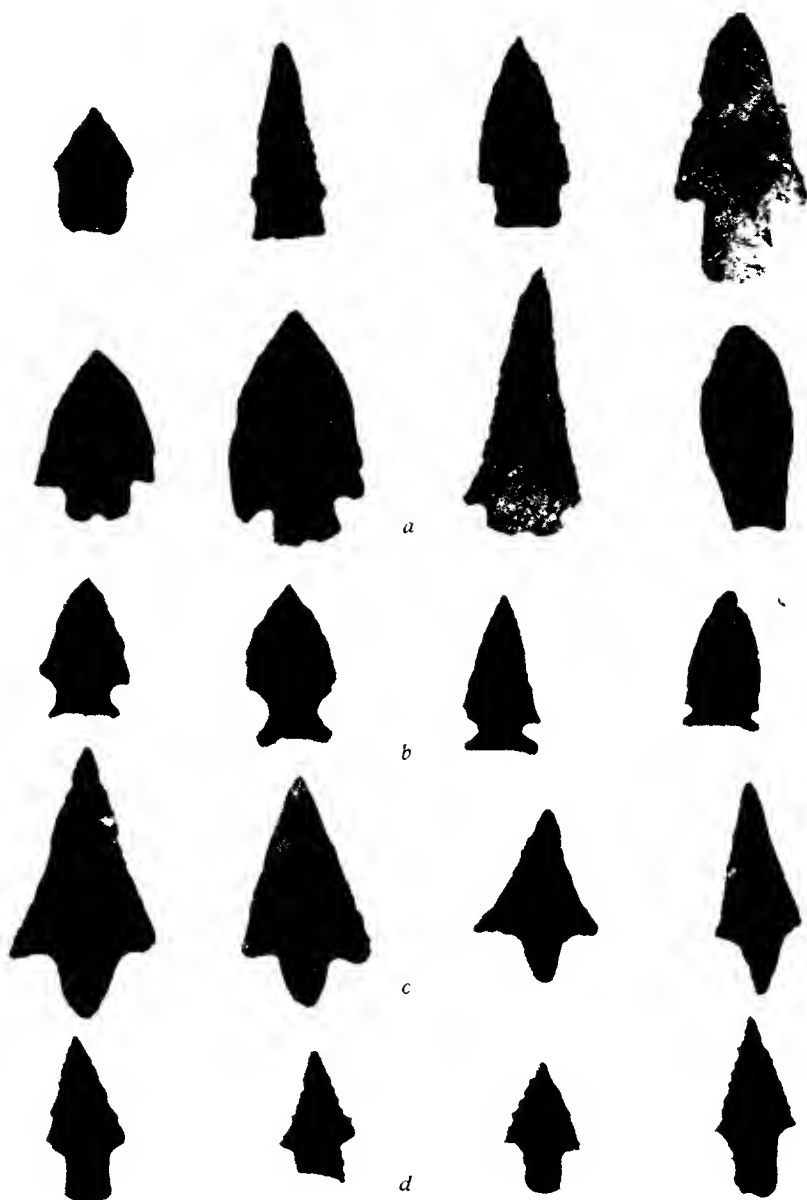
The method used in separating the artifacts found into general classes or ages was by first applying the basic principle of paleontology to them and then checking the topographical position and patina. The application of the principles of paleontology was the assumption that simple forms of arrowheads would be common to all ages, while unique and slightly complicated ones belonged to a more or less local cultural age. After separation of



Map 3 Two hundred village or camp sites located in "this area"



Arrowheads



Arrowheads

shapes the topographical position from which the different shapes came was plotted to see if there was any connection. It turned out that certain shapes were always found or predominated in certain terrace levels.

The outstanding example of this is an arrowhead made from a flint that weathers white. All samples are from the same material. As there is no local source all flint and stone had to be imported. These heads have a half moon-shaped concave indenture in the end of the haft that is instantly noticed (pl. 1*d*). They are found well distributed all over the four counties and the hafts are always alike. They are rarely found in the sites near the present streams, but are most common to the sites back on the edges of the hills at some 20 to 30 feet above the streams. This satisfies all conditions, a unique shape, common material, and a fairly uniform terrace level. Other haft shapes are equally good.

In plates 1 and 2 the heads are arranged in a tentative order of age. Four typical heads of each age have been placed together to show the different points built on the same shaft. Plate 1*a* is believed to be the oldest, and plate 2*d* is believed to be the youngest. The others are to come in between in about the order shown. However, while each row is held to show the prevailing type of a cultural age, the order of the ages is not to be taken as correct at this time.

Above and older than the "concaved base" the arrow heads are of the simplest forms and differ from the simpler forms of the later ages in material only. Few of them are of flint; they are usually of quartzite. This was at first thought to be imported from some distant source, but comes from a coarse gravel deposit scattered over the hills in the eastern part of Limestone county. The last two ages used every kind of local stone, including a peculiar greenish glauconitic flint that occurs in the Eocene limestone beds of eastern Limestone county. The Eocene limestones only have occasional nodules of the glauconitic flint in them, and so far none of the nodules have been found intact. The marks left by the people who dug them out and knocked the protruding portions off are still to be seen on the limestone near where fragments of nodules remain in place.

To designate as "terraces" the sand and gravel stream deposits in which the older artifacts are found, is a little misleading. The different stages merge too closely for any distance line of demarkation. They join together to form a sand and gravel veneer over the underlying Cretaceous marls and clays. This is particularly true on the long dip slope hills.

As the whole country is lifted up the streams slip down dip on the gentle dipping strata. This is true even where there is no hard stratum. It seems that even soft marls are cut into more easily parallel to their bedding

planes than down through them. This tendency of the streams to work down dip in the strata is the basic reason for the saw-tooth effect on the topography. Working down into the beds about parallel to the dip, the streams are continually undercutting ahead to the east, causing high west facing escarpments to be formed, and leave behind them long gentle east sloping hills pretty well covered with a sand and gravel coat, designated as terrace remains for want of a better name, and it is in this that all the older artifacts are found.

The streams find the Cretaceous marls and clays much easier to cut and carry away than the sand and gravel, and for that reason have a tendency to stay on the escarpment, or down dip side of their flood plains or "Bottoms," to use the local names. The bottoms are always covered with heavy timber and have sandy soil, whereas the steep escarpments on the other side of the streams have black gumbo soil with no timber. This detail is mentioned because it explains the great percentage of old camp sites preserved intact for present study. Between living on the shady sandy soil or the barren black gumbo the natives always chose for camp sites the sandy bottoms. The streams rarely double back through their bottoms so that any buried dead and the material placed with them, as well as all the camp debris covered up in the soil, were left intact by the stream upon the banks of which they were buried.

Camps were probably shifted down dip after the streams, leaving the abandoned sites to be covered over with flood water deposits first and later by outwash from the low hills. This covering up with outwash began after the stream had cut into the escarpment of its east bank until the west side of the bottom had reached the abandoned site, and kept up until the outwash swell or creep from the hill had passed over it. The swell is a portion of the cycle that befalls all the bottoms. Heavy rains wash material down from the hills which is dropped, in interlocking small delta-like deposits, on the up-dip side of the bottom. This fill rarely gets to be more than five feet thick and advances at about the same rate that the stream adds to the bottoms by cutting into the escarpment on the other side.

A site once buried remained so until the bottom, following the stream, had left it some 600 yards behind. At that stage the covering up had ceased; the elevation above the bottom was high enough for erosion to set in, and the covering was removed and washed down to fill in the near edge of the bottom, thus completing the cycle.

A good example of an old village site, that has been covered by the outwash from the hill, is near the north edge of the Navasota river bottom where the Cooledge-Frosa road crosses the Navasota. The site is in the

first stage and has been covered about three feet. It can best be seen in the ditch along the east side of the road.

After exposure of the remains in a site, which has gone through the covering up stage and reached the point where the covering has been washed off, they creep down-hill much faster than one would suppose. The broken rocks, flints, etc., being larger than the sand and small gravel, do not however keep pace with the outwash swell or wave, but lag slightly behind.

The first cutting into the camp site by the erosive agencies exposes all the remains to the action of the elements. Buried bodies, bones, and pottery if any, are completely disintegrated, and washed away in small bits. Only the flint and stone implements and the broken pieces of stones are left. Even the small flint flakes and probably the tiny flint tools, if any, are washed away. (This may account for the absence of the tiny arrowheads and potsherds in the older camp sites.)

All the coarser material and implements that are not washed away start a general concentration movement into piles, something like the secondary enrichment of ore bodies and the gathering together in pools of small particles of oil. The heaping of all the artifacts scattered, say, over an acre of ground into a few small piles is much easier for nature than the accumulation of small oil particles, widely disseminated through sediments, into a pool of millions of barrels.

The creep down the long gentle dipslope hills, of the sand and gravel terrace deposits with all the cultural remains in them, is not a smooth even movement, but rather a series of erosional waves that sweep back uphill from the bottoms. Small gullies and ravines from one to ten feet deep cut into the soil and work up hill. These join together in groups that fan out over a few square feet to as much as an acre or more. Each group lets its drainage area down from one to five feet, depending on its size and gathers the larger stones into the deepest gullies through which they are washed by flood waters to the mouths of the gullies, where they are dropped owing to flattening of gradient. Broken stones and flints over sometimes as much as an acre are gathered through one of these fanshaped gully groups into one pile at the mouth of the main gully. The sand and gravel are carried some few feet beyond the larger stones before being dropped, where they are usually deposited in small delta-like deposits on the hill slopes. The water trickles out of the deltas, gathers together again in another stream, and flows into another gully head. Thus the cycle of cutting back of gully heads, washing down of débris, and redepositing it, may be performed by one flood-rivulet a dozen times in its course from the top of the hill to the bottom of the slope. Every time the remains of

an old village site are lowered a foot or more the implements are gathered into increasingly larger piles, and the piles, as a rule, move closer and closer together with each letting down of the land surface.

Where an unusually large group of gullies fans out up hill and gathers the flood waters of as much as five acres into one gully mouth or bottle neck place, all the artifacts dropped within the area will eventually reach the neck and be dropped at its mouth, just as in the case of the smaller groups, but on a larger scale. In some of these larger deposits the cultural remains are in beds several feet thick and have been miscalled "middens." Some of these deposits have resisted erosion to the extent of being low mounds, but they need not be confused with middens or man-built mounds, since they contain no bones or perishable remains.

Wherever a comparatively large group of small rivulets has recently gathered into one pile the remains from over a large area, of say, five acres, the artifacts of several ages are brought together. Such places are poor for data on age. The small isolated sites are better in that all the implements are of one kind and typical of their period.

This process is still going on, and every village site is at some stage in the cycle. Some are caught in small erosional waves and moved only a few yards in a completed cycle, while others descend a hundred yards or more in one cycle. No two are being moved in exactly the same way, details varying with the general topography. All are following with the same general trend, the tendency being toward continual concentration of like sizes into smaller and smaller areas.

The creep down-hill and the rapidity with which the erosional waves repeat have been speeded up in the last hundred years by cultivation of the land. Until the last few years practically none of the fields were terraced and the unprotected plowed soil readily washed away. Some fields, where small patches have been protected by house or hedges, are on the average four feet lower than they were fifty years ago. In fields showing as much as five feet of erosion since the land has been farmed, the remains have in the same time moved downhill about 40 feet on the average,—about ten feet to every foot of surface erosion. One site visited last year had a small gully some two feet deep and thirty feet long cutting back into one edge of it. This year the head of that gully had cut back at least fifteen feet farther into the bed, and with its tiny tributaries has lowered a good 150 square feet an average of about one foot. All the artifacts within this area had been deposited about where the head of the gully was last year.

Thus, while a large accumulation of broken stones, artifacts, etc., are the remains of an old camp site, they are not necessarily on the same

spot where they were originally left. Since the first erosion removes all the bones and pottery remains, if any, their presence is good evidence of an undisturbed site. Such a one usually has an abundance of potsherds, bone fragments, tiny arrowheads, and fairly large masses of burnt stones.

The bone fragments are both human and animal. Four male human skeletons were uncovered in a levée ditch that cut through a site on Harris branch in Navarro county, about five miles north of Dawson and about half a mile above where Harris Branch empties into Richland creek. Two of the skeletons were about two and a half feet deep, and two about one foot. The upper two were partially over the lower.

The sites with the largest number of human bones exposed lie on low sandy hills or mounds in the edge of the bottoms that rise from three to fifteen feet above flood water. At some time in the past the streams, probably in their meanderings, flowed by these low hills for long periods of time. Practically all the low hills jutting out into the bottoms of the large streams like the Brazos and Navasota rivers are recent camp sites and contain remains of human bodies in large numbers.

When the streams flowed close to low hills these offered natural advantages, such as closeness to water and freedom from floods, which made them unusually good camp sites. The natives took full advantage of them, as shown by the enormous accumulation of broken stones, chipped flints, and other evidences of human habitation. Sometimes, where hard ledges of rocks have for ages, held the streams in comparatively narrow channels, the accumulation of imported flint fragments and artifacts runs into tons.

Such sites are wonderful places for a collector, but all ages are intermingled so that classification as to geological age is impossible. In two, which are still good camp sites, beer bottle bottoms are to be found lying beside artifacts of great antiquity. The variety of material is also large. Fragments from all sources are to be found. The farthest source so far recognized is the Boone Chert, Mississippian age, from northern Arkansas or Missouri, the nearest outcrop of which is five hundred miles away.

Most of these large, more or less permanent sites are pretty well known to local collectors. They are not very common, and were not large enough at any one time for more than a very small percentage of the population of the country. Almost every acre of the present bottoms of the streams has been lived on at one time or another, not only laterally, but in depth as well. Every drainage ditch or cut-off, where flood waters cut cross bends, that has cut down as much as three feet into the alluvial will expose some artifacts. This is also true down to depths of as much as ten feet. The evidence of human habitation at these depths is usually nothing more than thin layers,

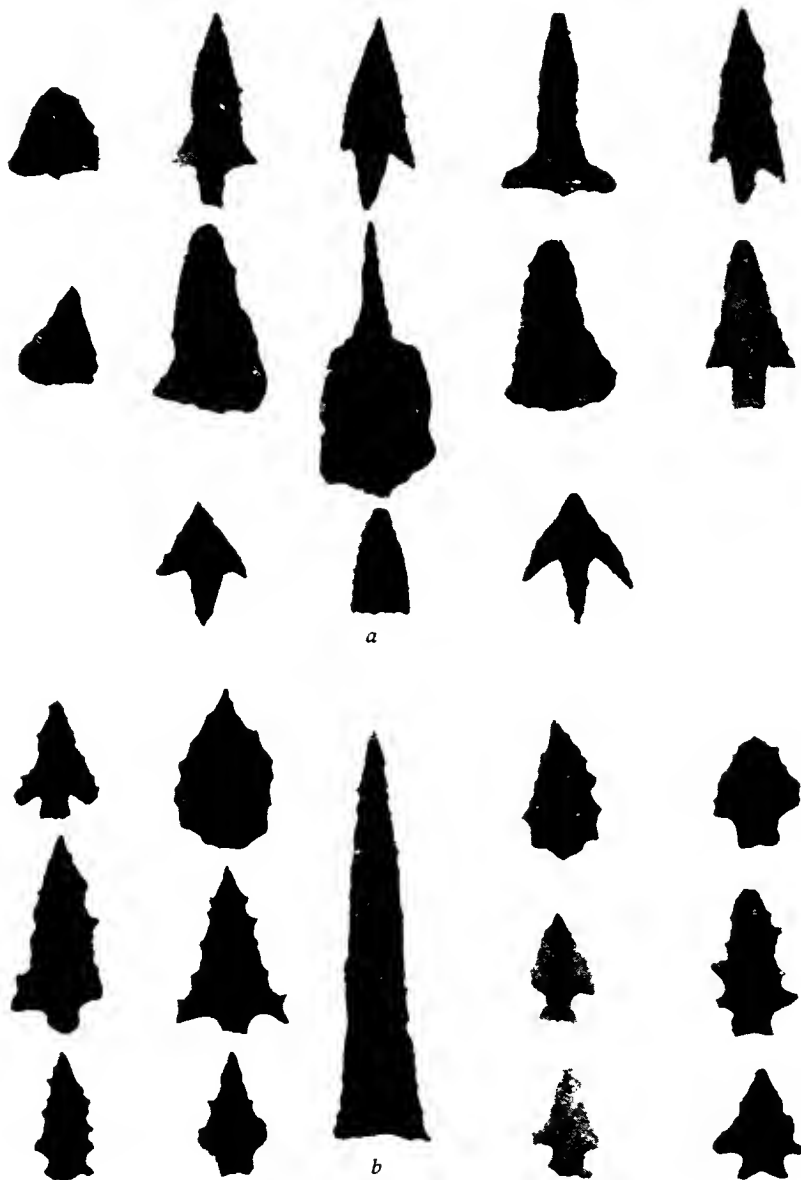
which were at one time land surfaces, that have scattered broken stones and occasional shaped tools and arrowheads in them. In these buried sites the bones seem to be pretty well preserved, but so far the writer has not found enough to justify digging out. The bones are usually broken fragments. The deepest one so far discovered is in McLennan county, about 1/4 of a mile down the Tehuacana creek from the crossing of the north Waco-Corsicana road. The remains are covered with ten feet of alluvial deposits and are best exposed where a cut-off flows back into the main stream.

The small streams, even the intermittent drains with bottoms less than 500 feet across, have remains of small camp sites every few yards and seem to have been lived upon everywhere at one time or another. The artifacts found in the bottoms of these small intermittent streams are the youngest of them all, and it is here that the potsherds are the most common. None of the sites are large, and the broken stones are not so abundant as in the larger sites. Most of the remains are finished implements. In some, the arrowheads themselves outnumber all other remains. It is in these small sites that the greatest percentage of perfect unbroken implements is to be found, owing probably to the absence of stones to break them as they are rolled about in plowing. The small amount of débris present makes it easy to overlook these little sites, but once found they are rich in museum specimens. Over fifty perfect arrowheads alone were found in one in less than thirty minutes. The workmanship, from an artistic point of view, is of the highest order. Since no manufacturing was done there, these small camps must have been temporary stopping places. Their occupants were superior in flint chipping to the people residing in this general area during any period.

The large distribution of these small sites over the flood plains of the small streams shows that the last of the flint users considered any place in the narrow bottoms good enough to live in. These people seem to have clung to the drainage area of one large stream and rarely crossed major drainage divides.

The divide between the Trinity and Brazos rivers twists around through Limestone and Navarro counties. Among the oldest arrowheads, from the upper terraces, there is very little, if any, difference between those found in the two drainage areas. However, the younger heads, found next to the streams, differ markedly. This tends to show that there was little, if any, traffic between the people of the Trinity and the Brazos before the coming of the white man and horses, after which the use of flints was discarded.

The first noticeable difference between the artifacts of the two drainage areas is in the material used. On the streams of the Trinity system most of



Arrowheads

the implements were made from quartzite, flint tools being rare, while for the Brazos area the reverse holds. In the shape and style of arrowheads the most noticeable difference is in the finish of the heads. On the Trinity side the great majority have well-shaped and sharp barbs projecting from the sides, and so far these barbs have not been found on any of the streams that drain to the Brazos. Plate 3*a* illustrates small points and knives from the Brazos, and plate 3*b* illustrates similar implements from the Trinity.

A good place to study this difference is in western Limestone county. Christmas creek, the stream that crosses the Waco-Mexia road about a mile west of Prairie Hill, flows to the Trinity. Elm creek, the first stream east of Ben Hur, flows to the Brazos. Both streams were lived on solidly clear up to their very heads, and east of Ben Hur are less than four miles apart, with a low prairie divide between them. Yet even here there is no overlap of the cultures peculiar to the two major drainage areas. This, of course, only applies to the heads found within the present bottoms. The older pieces, noticeably the ones with the concave base to the haft, are common to both, but they are rarely found in the bottoms.

The difference between the Trinity and Brazos culture is most marked in the barbed quartzite heads, but that is not the only shape that can be used as a marker. There are some half dozen others, but the writer's Brazos collection is too poor to make a positive assertion. Some of them may be common to both. There are some dozen peculiar shapes that must each belong to some cultural age of wandering tribes. The persistence with which they cling to the same material and shape, regardless of where found, mark them as of one common origin.

One type that has particularly attracted attention is a very flat head with a clean cut "V" in the base of the haft. The two left heads in plate 2*b* are typical shapes. This head is always of a rose-colored flint, and so far is common only to the Trinity, but is different from the general run of Trinity culture. The source and distribution of that flint would be interesting to know.

With the meager facts at hand that point toward a clinging of certain shapes and material to the drainage areas of the streams on which they are found, it ought not to be hard, with a car and good roads, to test it out over a large area. The Brazos, Trinity, Red, and Arkansas rivers will be searched from one end to the other. The plan is to stop at a stream crossing about every fifteen miles, find one old camp site, and get enough specimens to determine the shapes and material of that local area, plotting them on maps as is done in geology.

Box 188,
WACO, TEXAS

PETROGLYPHS, THE RECORD
OF A GREAT ADVENTURE

By MARY RUSSELL F
and HAROLD S. COLTON

IN THE Painted Desert of northern Arizona, one mile south of Willow Springs, and six miles west of Tuba City, several large boulders of Wingate red sandstone have broken from a cliff and rolled into a valley. One of these rocks bears petroglyphs on every side, including the top (see pls. 4 and 5). These petroglyphs date from late prehistoric to modern times and are quite unlike the ancient ones associated with pueblo ruins and cliff dwellings. Although lying 50 miles northwest of Oraibi a particularly well-informed Hopi Indian¹ has identified the petroglyphs as Hopi clan symbols.

Though unable to identify all the drawings, he has identified most of them. Depending upon the skill of the artist, different forms of the same symbol appear. At other times different symbols stand for the same clan. These apparently unrelated symbols for a given clan are explained in the clan legend (figs. 1 and 2). Where the same symbol is repeated with the same technique, we were informed that this represented repeated visits by the same individual. Among those that our informant recognized are two extinct clans. He suggested that the unrecognized symbols may also be extinct clans.

Our Hopi informant recognized the following clans, which list has been compared with those of Mindeleff² and Fewkes³ and shows some differences. As Voth⁴ has pointed out, Hopi clans grade into one another, so that no two informants will agree; thus, confusion results. The asterisks indicate the clans whose symbols have been recognized on the rock.

- Agave.
- Asa (*tansy-mustard*).
- * Badger. Symbol, footprints.
- * Bear. Symbol, footprints.
- * Bluebird. Symbol, small bird.
- * Bow. Symbol, bow.
- * Butterfly. Symbol, butterfly.
- Cactus.
- * Cloud. Symbol may also be a rainbow, lightning, duck, tadpole, frog, or any aquatic animal.
- * Corn, melon. Symbol is usually a corn plant, but may also be the "germ god."
- Cottonwood.

¹ Edmund Nequatewa

² Cosmos Mindeleff, *Localization of Tusayan Clans*, BAE-R, 19: 639-649, 1900.

³ J. Walter Fewkes, *Tusayan Migration Tradition*, BAE-R, 19: 577-633, 1900.

⁴ H. R. Voth, *Hopi Proper Names*, Field Columbian Museum, Publication 100, 1905.



a. Picture Rock near Willow Springs. All sides and top are covered with pecked petroglyphs of the symbols of Hopi clans. *b.* south face of Picture Rock. Typical petroglyphs have been chalked. The rest are invisible in the photograph.



a, part of the east face of Picture Rock. Typical petroglyphs have been chalked. *b*, part of the west face of Picture Rock. Petroglyphs are unchalked

- * Coyote. Symbol may be a wolf, yellow fox, gray fox.
- * Crow. Symbol, a crow or track.
- * Eagle. Symbol may also be a turkey or turkey buzzard
- Fire. Symbol may be firewood, piñon, juniper, or the face of Masauu.
- Hawk. May include turkey.
- * Horn. Symbol may be antelope, mountain sheep, deer, or anything with horns.
- * Katchina. Symbol, katchina masks or spruce bough.
- * Lizard. Symbol includes horned toad and snake. The latter may confuse it with the Snake clan.
- Mescal cake.
- * Moon (extinct). Symbol may also be a star.
- * Oak (extinct). Symbol, the wooden stick on which the maiden's hair whorls are built up.
- * Parrot. Symbol, a bird with a curved beak.
- * Rabbit. Symbol, a rabbit or a rabbit's ears.
- * Red ant. Symbol, an ant.
- * Reed. Symbol may also be an arrow or road runner.
- Tobacco. Symbol may be either a plant or a pipe.
- * Sand. Symbol, a circle or square representing a field sometimes inclosing a cross. The cross represents the points of the compass.
- * Sivapi (rabbit bush). Represented by the blossom.
- * Snake. Symbol, a snake.
- * Snow. The symbol is a cloud without lightning and can therefore be confused with the Cloud clan symbol which is frequently drawn with lightning.
- * Spider. The symbol is either the spider or web.
- Squash. The symbol may be also dove or crane.
- * Strap or rope. Symbol, a rope with noose.
- Sun.
- * Sun forehead or rising sun. Symbol, a half sun.
- Young corn.

The Hopi informant explained the rock and its petroglyphs as follows:

Down in the labyrinthian depths of the Grand Canyon of the Colorado river and the gloomy box canyon of the Little Colorado, abide the spirits of the Hopi. From the great canyon they emerged in the dim past and down into its mysterious depths the dead return to reside in Hadean gloom. Weird legends deal with the ghostly inhabitants who, arising from the abyss with glowing eyes and monstrous form, travel out across the Painted Desert to revisit their earthly homes on the Hopi mesas, where they maintain a lively and beneficent interest in human affairs.

It is natural, therefore, that these great canyons, the abode of the dead, should have been regarded from time immemorial with superstitious dread. In the bottom of the canyon of the Little Colorado, on the west side near its

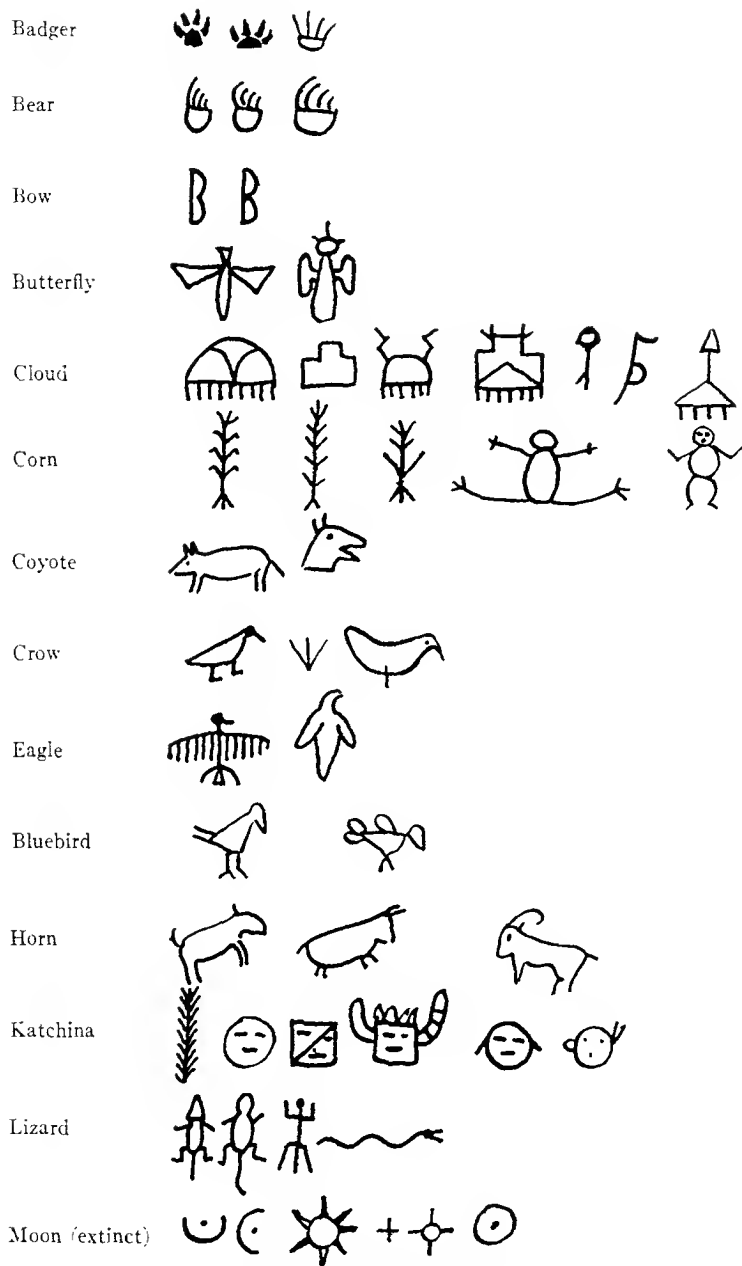


FIG. 1. Typical clan symbols.

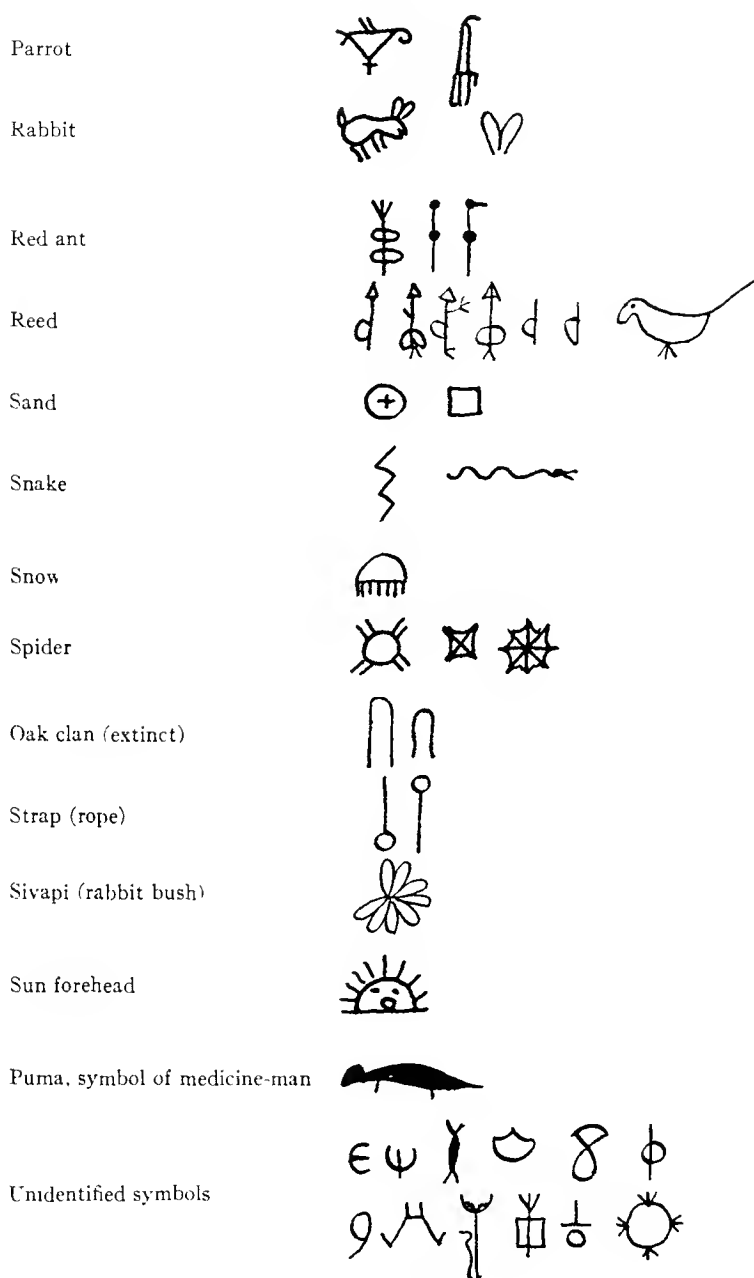


FIG. 2. Typical clan symbols.

junction with the Colorado, there is a salt deposit formed by dripping springs in the canyon wall. An ancient trail runs from the Hopi villages across the mesas to the valley of the Moencopi, along the foot of Echo cliffs and thence across the desert to the rim of the Grand Canyon where it plunges in and follows the south side to the mouth of the Little Colorado and crosses it to the west shore.

At the point where the old trail enters the Grand Canyon there stands a pinnacle of rock just below the rim. To this it is necessary to attach a rope to lower the adventurer to the trail below. It is said that the remnants of an ancient yucca rope still hang from the pinnacle and that it was the custom of the Hopi salt gatherer to bring with him a generous supply of cornmeal mush, boiled until as sticky as chewing gum, to assist in holding the rope against the rock and to prevent chafing.

From prehistoric times the ancient peoples have made this precarious journey down to the old salt mines, through the dreaded underworld, and back up the rope way, with heavy burdens on their backs, where a single slip would mean a drop into the abyss thousands of feet below. Only a man with a strong heart would dare to let himself down out of his sunlit desert world into the eerie gloom, where a terrible silence engulfs every living thing. Such a man would be proud to return alive and his desire would be great to have a permanent record of his adventure. But would he undertake so hazardous a journey for salt alone? It is true that salt was an epicurean treat before the advent of the white man, but it seems likely that there were other and more accessible sources of supply. The salt from the old mines in the Little Colorado was not common salt. It possessed magic properties. This salt had once been the possession of the two brothers, Brave Boy and Echo, now commonly called the Two Little War Gods though they actually have no connection with war. They were the mischievous grandsons of the wise old Spider Woman, kindly protector of the Hopi people.

A whimsical legend gives a detailed account of a prank perpetrated upon their grandmother, the Spider Woman, which so infuriated the old lady that she chased the bad boys all the way from the Hopi towns to the Grand Canyon. They descended into the depths to escape pursuit and sat down to rest in a cave at the junction of the rivers. Here one of the boys laid aside his lump of salt which he had carried with him, and when they commenced their return by the way they had come, he left it in the cave. Just before they reached the top they decided to sit down and wait for awhile in order to make sure that the old Spider Woman was not lying in wait for them there. They sat so long that they turned into two pinnacles

of rock, side by side, and as they never returned for their lump of salt it is there today. No matter how much the people carry away, it is continually renewed by the magic of the Two Little War Gods.

It is believed that the family of the Spider Woman always enjoyed good health and that those who eat the magic salt will be healthy likewise. Of the two pinnacles of the War Gods, only one now remains at the head of the trail and to this the yucca rope was attached.

When the early salt gatherers trotted down the trail by the red Echo cliffs, they felt a great urge to leave a record of their daring. They came upon a great sandstone boulder close beside the way and here they stopped and each man, with the point of a sharp rock, laboriously pecked into the smooth surface of a boulder the symbol of his clan, that all who passed that way might read. They may have been men of the Cloud clan or the Bear clan or, perhaps, a clan long since vanished and forgotten. But they set their mark, their record of a great deed.

Through the centuries many brave men came down the old trail upon the same errand, an unending line back into the dim past. Each man paused beside the boulder and placed his clan symbol beside those of his clan brothers who had preceded him. Finally the great boulder became crowded with an intricate record of the clans, an overlapping network which covered every surface of the rock. And still men came along the slender trail bound upon the great adventure and now human desire had become a ceremonial necessity, as they paused to leave their symbol on the enduring rock. And the record moved on to another boulder and to another, and who can say they do not still pass that way? There are symbols there of recent date, whether idly placed or with ceremonial intent.

The Willow Spring rock may be a rosetta stone. Perhaps we can interpret many of the earlier petroglyphs as clan symbols placed on a rock to record some great adventure.

A BEAR RIVER SHAMAN'S
CURATIVE DANCE

By GLADYS A. NOMLAND

THIS dance was made on Eel river near Fernbridge, Humboldt county, California, on April 24th, 1930, by a woman of about sixty-five years of age, called Nora Coonskin. She is a Bear River woman of the Northern California Athabascan group.

In early life she had been trained for a doctor or shaman by her mother, who was also a powerful shaman, at a place called Mess-e-ah on the lower Bear river, but she was thought to have too much power for her tender years and did not practice doctoring from the time that she was about thirteen years old until very recently. She told me that spirit voices had warned her lately that she would die soon unless she again practiced shamanism. She began to dance and sing for the sick when called upon and has now been given so much spiritual power that she is impelled to continue with her doctoring.

The dance was held in a vacant house where a heating stove had been installed and a bed for the sick boy, a tuberculosis patient about sixteen years old who was so emaciated and weak he had to be carried in from the automobile and put into the bed. Chairs and benches were arranged around the room and two lanterns hung on the walls at opposite corners. The floor had been swept and dampened. A special chair was placed for the shaman¹ facing the east, with a mat of rush in front of it.

The doctoring ceremony began about 8:30 p. m. The shaman first removed shoes and stockings and put on a cotton wash dress, after which she smoked from an old sacred tubular pipe about six inches long, which had a ferrule about two inches wide of polished stone at the large end and a smooth wooden mouthpiece inset with diamond-shaped pieces of abalone shell. At each puff on the pipe she exhaled with a hissing sound and called out in a loud voice "Shah!"² looking upward and all around the room. The spectators then kept silence. She smoked five or six puffs and then handed the pipe to an old woman assistant who sat on her right. The assistant held out the pipe in her right hand and began to recite, in a loud voice, a formula prayer³ calling upon the spirits to aid the shaman and give her power. Immediately after the prayer the shaman began to sing, very low, and the spectators sang a second part accompanying her. She sang louder

¹ Shaman or doctor called Iss-en'-eh

² "Shah" means "sickness get away, go back from where you came."

³ This formula is always the same and precedes the singing and dancing of the shaman.

and louder, her assistant singing her song, while the spectators sang the second part to the main song. As she sang louder and faster she reached behind her for her staff of hazelwood,⁴ which was about five feet long, and held it out from her with her right hand using the floor as a pivot for one end and shaking it in a circular motion as she sang. As soon as the spiritual power became strong enough, she got up and began dancing on the mat in front of her chair, holding out the staff in different directions with first her right and then her left hand, singing and stamping in time to the music. She stopped singing at times and let the assistant and the spectators carry on the song, breaking in at intervals and singing again. As she became more excited she handed the staff to a man sitting on her left and danced to different parts of the room, sometimes singing, always facing the east, holding up first one arm and then the other and sometimes both of them. At this point the assistant took out some live coals and put them on top of the stove and then burned angelica root on them until the smoke penetrated to all parts of the room. (Angelica root is sacred to the spirits and induces them to enter the house, and gives spiritual power to the shaman.) The shaman finally danced to one corner where some children were sleeping and got a little girl. She held the two hands of the child lifted above the head and danced with her to the patient's bed, and back and forth for a few times. She then discarded the child, who went back to bed, and danced to the side and in front of the patient's bed, holding out her hands towards him. By this time she was so excited and exhausted that she was panting audibly and two men stood behind her ready to catch her when she fell. Suddenly she threw herself backwards onto the floor, screaming piercingly. The men caught hold of her and eased her to a better position. The singing stopped abruptly. Her hands grasped her throat and her legs and body contorted as if in an epileptic fit. The men held her to prevent injury, and finally partly lifted and dragged her to her chair as the paroxysm lessened. She remained in her chair, half reclining, half resting, and moaning for some little time. She then began to hiccough, cough, retch and vomit, holding her two hands in her mouth, until she extracted the pain⁵ which had entered her, through her hands, from the patient's body. She stood up and held her two hands clasped together, with the pain between the palms. As soon as she had regained her breath, she opened her hands cautiously and examined the pain, laughed a little, and started to sing and dance again in order to dispose of the pain, which she sent away in the direction from which it came. The spectators sang

⁴ Young pine may also be used where hazelwood is not available

⁵ Pain is called "sill-luck."

with her until she sent the pain away. then everyone stopped singing, talked of everyday happenings, smoked cigarettes, and jested, while the shaman rested.

The second part of the ceremony began with the reciting of the prayer, by the assistant. The shaman sang a different song and danced as before, but this time instead of burning angelica root the assistant stood in front of her chair and danced with two eagle feathers in her right hand. She sat down as the shaman began panting and was about to extract the pain. The shaman got the pain from the patient so swiftly this second time, that she was knocked over flat on her back, the supporting men failing to catch her—a very hard fall—she became unconscious but revived after having a cup of water thrown in her face. She then began to moan and groan and contort with all the appearances of great suffering. The men dragged her to her chair, where she rested, moaning, and then coughed and vomited up the pain, as before, stood up and began dancing and singing again, accompanied by the spectators. After regaining her breath she opened her hands and looked at the pain, laughed again and got down on all fours, and walked like a dog. She danced, on all fours, to the door, which was opened for her, and took the pain “outside, where it belonged,” sending it in the direction from which it came. She explained to me afterward that poison is made by cutting off the end of a dog’s nose and boiling it and using the water to sprinkle on the ground where the victim steps on it or breathes the evaporating liquid, or by putting it on the end of a stick or string and dangling it in front of the sleeping victim’s nose or open mouth. The person administering the poison puts on a dog’s skin and goes out among people at night to find his victims. He is counted as a “devil” and when this kind of a pain is extracted the shaman is impelled to act like a dog in order to send the pain away in the direction from which it came. This conception of a devil is, however, intrusive from the Wiyot and was not used by the Bear River Indians in olden times.

The third pain was extracted by the same ceremony except that there was no burning of angelica nor dancing by the assistant with the two eagle feathers; instead, the shaman opened the stove as she danced, took out a handful of live coals, put them on top of the stove, and used them with bare hands to light her doctoring pipe, which she smoked for a time while dancing. She again took the little girl and danced with her, taking the pain out of the patient through the child’s hands.⁶

⁶ This little girl had been accused of pushing the little Burt grandson off the pier and drowning him. The boy was drowned four days before, and the shaman was proving that the

The next two pains were extracted by repeating the ceremony, again with some variation. The assistant shouted out the prayer, then the shaman sang a different song, danced but failed to finish taking out the pain.⁷ She went back to her chair, smoked the pipe and began all over again with the same song, this time carrying the ceremony through to the end.

After the fifth pain was extracted, the regular shaman's treatment for the patient was finished and she sat down and smoked cigarettes while the assistant gave the last dance.

The assistant smoked the doctoring pipe, and at each expulsion of smoke called out "Shah," and looked upward and around the room. She took out her two eagle feathers and held them in her right hand. With her left hand she threw a basket, about eight inches in diameter, on the floor in front of her feet. She began to sing, the spectators accompanying her, and finally got to her feet, picked up the basket, and began to dance, waving the feathers and making a scooping and brushing motion with them and the basket, all the while singing and ejaculating "Shah!" She danced all over the room—always facing east—into the corners, calling out "Shah!", and at last danced to the door, which was opened for her, where she waved, brushed and scooped with basket and feathers, and sang for some time crying "Shah!" "Shah!" Then the door was closed, everyone stopped singing, and she sat down. This dance was explained to me afterward by the shaman as being always the finish of the curative ceremony, and is made to drive out all evil spirits that may be hovering around the room or house.

Everyone talked and smoked as soon as the assistant finished dancing. The shaman got up and went to the river and swam, although it was 1:30 a. m. and raining. After the shaman returned from her swim, we all went to the patient's parents' house, where we had a big feast of boiled eels, fish, eggs, bread, coffee, etc. The assemblage broke up at 2:30 a. m. and everyone went home.

160 BELL AVENUE,
PIEDMONT, CALIFORNIA

little girl was innocent of the charge by drawing the pain from the patient to her own body through the child. The shaman said that if the girl had been guilty she could not have drawn the pain through her.

⁷ The shaman said she was "looking the pain over" before extracting it.

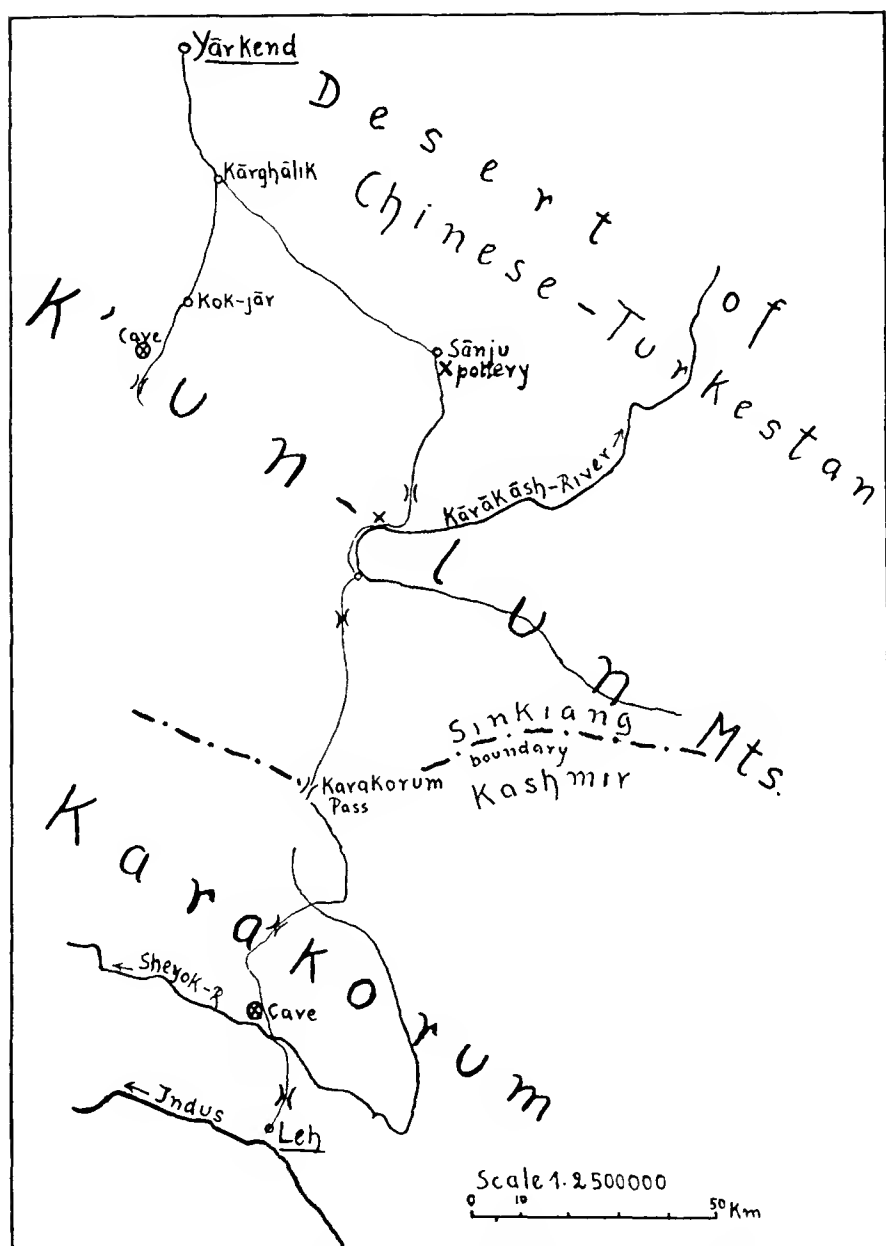
PREHISTORIC CAVES NORTH
OF THE HIMALAYA

By H. DE TERRA

DURING my journey to western Central Asia in 1927-1928, I twice came across ancient cave dwellings. One is situated in the western K'un-lun range, south of the bazaar town Karghalik, the other lies in the Karakorum mountains in close proximity to the well-known caravan road which runs across the Karakorum pass and connects Chinese Turkestan (Sinkiang) with Kashmir. Both caves are deserving of interest as they not only show peculiar ancient rock inscriptions and drawings but are filled with a loess-like sediment that dates back approximately to the period when the youngest loess formation in that region was formed. As I did intensive geological work in the K'un-lun as well as the Karakorum and Tibet, I am able to describe with some degree of accuracy the geological position of the two cave dwellings, which differ greatly from one another. It was indeed the very striking geological position of the caves that enabled me to immediately recognize them as important witnesses of early human culture in regions where until now no one had noticed anything similar, and where no archaeologist would have dreamed of finding traces of very ancient human habitation. Indeed, the Karakorum cave is situated about 13,000 feet above sea-level, the K'un-lun cave at a height of 9,000 feet, both in mountainous regions which even today are looked upon as the most rocky and difficult ground on the earth's crust. In order to give a complete picture of the two caves I should like to describe each in detail, with special attention to their geological and geographical positions as they were observed by the author.

THE K'UN-LUN CAVE (*töshuk-ong-oi'*)

This cave was shown me by my native companion, whose home was Kök-jar, a small bazaar village two days march south from Karghalik (see map 1). With my small caravan I started from Kök-jar on April 4, 1928. After passing the Chinese custom office at Otun-su, I left the valley of Kök-jar traveling eastward on a trail which branches off from the caravan road leading to the Ak-korum Davan at a little hamlet called P'sar (erroneously surveyed on English maps as Pussa). Half a mile from P'sar one enters a valley which runs almost parallel to the neighboring Yaghaile valley, through which one of the main trade routes leads to Kashmir. I followed the course of this valley, called Köllkash by the natives, for about four hours, riding over soft loose ground, which here and there permitted agriculture on a modest scale. I camped at a place called "bash-



MAP 1. Sketch map showing the position of the caves in western Central Asia.

tekan" (five rivers), and the following day saw us marching southward again through the same valley, the end of which we reached very soon after a three and a half mile ride. This spot was marked by a couple of small huts and some fields; the shepherds who owned the ground called it Sekis-jar (eight valleys). Here the valley splits up into two smaller ravines. We followed the one running eastward and our way ascended quite steeply, leading us through the coarse gravel of the river. Now and then, however, while crossing small remnants of loess terraces, we met with softer ground and after an hour's walk from Sekis-jar, Mohamed Akkon, the guide who had come with me from Kok-jar, showed me the cave, which I shall now describe in detail.

The position of the cave is on the right side of the water-stream that flows down to Sekis-jar and the entrance lies about four feet above the present river bed. Plate 6a shows very clearly that the cave is of natural origin and has been formed by water erosion, as it lies exactly at the point where a small canyon ends in the ravine. As one approaches the entrance to the cave, or canyon, one leaves the gravel of the river-bed and ascends a few feet to a small terrace that consists of yellow clay mixed with gravel. At the entrance itself the steeply ascending rocky walls of the ravine bend into the little canyon, and here it is that the clayey gravel changes to a loess-like soil, which fills the bottom of the canyon. As one goes further the small canyon bends NNE, becomes narrower, and ends abruptly in a narrow cleft, which must formerly have contained a waterfall as its walls show every sign of water erosion. Thus the cave is actually situated at the point where formerly the outflow of the waterfall into the ravine took place. The total length of the cave is 33 feet and at its broadest point it measures 6 feet from one wall to the other. Directly in the middle, where the cave makes a bend, the walls are about 5 feet high and are covered with many carvings and inscriptions. In addition to this, the walls show a peculiar sort of brown polish, which I first took for the weathered surface of the rock but which on closer examination turned out to be a dirty and somewhat oily crust of the kind one observes in Tibetan stone huts or sometimes sees on the walls of prehistoric caves, where man or beast has rubbed against the rock. Very striking indeed was the fact that the ornamented and darkly overcrusted cave wall continued so deep under the loess filling that at a depth of two feet I had not nearly reached the proper bottom. While digging in the loess I did not, however, find any implement or any trace that could have given me a hint concerning the nature of the former inhabitants of this cave. I am, however, convinced that could I have dug to the bottom of the cave, I should have found the remains of meals or implements and primitive house-



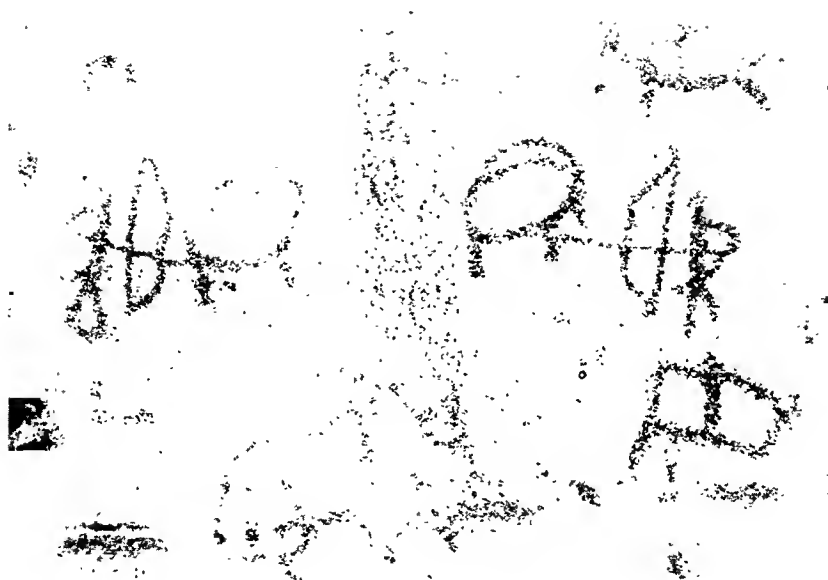
a

The K'un-lun cave in the upper Kollkash valley. (The dotted line marks the upper edge of the cave as well as the boundary between the upper-lying loess and the ornamented cave wall.)



b

The Karakorum cave in lower Murgistang valley.



A section of the walls of the Karakorum cave with rock carvings showing hunting scenes.

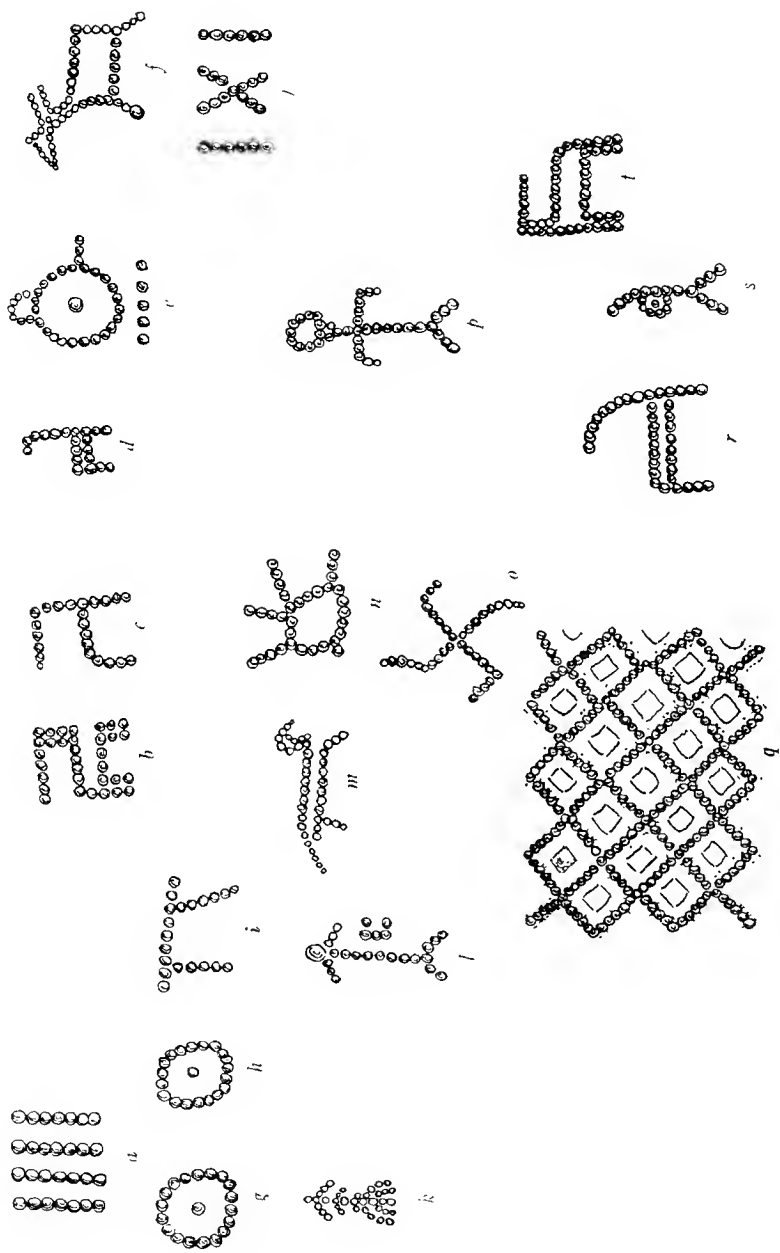


FIG. 1. Types of rock carvings in the K'un-lun cave.

hold possessions—but unfortunately this was impossible owing to the hostility and suspicion with which the Chinese officials controlled our work, at that time. For me there is some consolation in the fact that from the character of the rock carvings and ornaments, we are able to judge something at least of the standard of civilization under which these former cave-dwellers must have lived. In drawing our conclusions we cannot, however, be careful enough as it is well known how very primitive are the rock carvings with which the recent nomadic tribes (such as the Tādshiks in the Pamir)¹ describe their hunting adventures. In this case, therefore, it is most important to know how the carvings were made and what kind of instrument was used. In the first place, the rock that forms the walls of the cave is a pretty hard, siliceous limestone which must have been very difficult to carve. The characters, figures, and ornaments (fig. 1) are formed by small, smooth holes, 0.5–1 mm. deep and 4–5 mm. in diameter, set one after the other, as indicated in the figure. In the small squares of figure 1*q* deepenings are found, but these are not indicative of a method of carving differing from the other inscriptions. From the manner in which the various figures have been carved one can say that the instrument employed must have been exceedingly hard and blunt, most likely a stone or stone chisel. The uniform and regular shape of the pit-holes indicates furthermore that the material of the instrument was harder than the rock, which possesses approximately a hardness of $6\frac{1}{2}$ degrees. The younger rock inscriptions which I have seen in the Himalayas near Kharboo or those in the vicinity of Tankse in Ladakh (about 900 A.D.) show quite a different manner of carving. They consist of straight cut lines which must have been made with sharp instruments; besides this they have been cut into the weathered surface of the rocks and do not show ornamental style as do ours. This latter fact leads us to another conclusion: that the K'un-lun cave sheltered a people who possessed enough artistic feeling to decorate their dwelling with ornaments and pictures. The ornament, shown in figure 1*q*, is not limited to one spot but runs at a certain height along the entire eastern wall of the cave, thus forming a broad band which makes the base rock vivid and more pleasant to look at. In one place the band-like ornament is interrupted by some other figures, two of which may be taken to be animals turning their heads backward (fig. 1*r*, *t*). Figure 1*p* could be a stylistic human body, but of greater interest is the sign to its left, figure 1*o*, the lying cross, which is strikingly reminiscent of the "svāstikāh" of the Buddhists. But if we accept this interpretation, we

¹ A. v. Schultz, *Die Pamirtadschik* (Giessen), 1914.

could with equal justice interpret the cross-like characters (fig. 1*l*, *k*) to be Christian crosses, which would certainly lead us to a wrong and rather peculiar conclusion. The only inscriptions which can be easily interpreted are the pictures of animals, figure 1*f* that of a horse or donkey, and figure 1*m*, a dog or wild beast of the canine type. All the other signs are for me more or less impossible or at any rate very uncertain to interpret and I should therefore like to leave the interpretation to readers better versed in the art of deciphering petroglyphs and old rock inscriptions.

As proof of the age of the cave I have already mentioned the peculiar primitive method employed in making the inscriptions. But far more important is its geological position. Up to two-thirds of its height, at least, the cave is filled with loess. It is not the pure type of loess which I found covering the Mesozoic and Tertiary of the northern slope of the range but more sandy and of the same type as the youngest loess which fills the broad valleys of the Sandshu or Kilian river and which very probably is of younger Pleistocene origin. In this latter type of loess we always find sand and pebble strata interbedded and it is originally derived from that mighty primary loess which once covered the slope of the northernmost range of the K'un-lun. I have already mentioned the few remains of loess terraces in the ravine and there is no doubt that the pleistocene loess once filled the entire ravine. The ravine itself was formed by younger erosion which doubtless also cut the deep canyon on the right side of the ravine. And it is evident that this canyon must have been completed and that its water stream must have dried out before men came and made the mouth of the canyon into their home. They settled in the dry canyon in front of the small river, which slowly deepened its bed in the ravine and more and more eroded the former loess filling. But eventually the cave-men deserted the cave and this seems to be best explained by the fact that the cave became filled with the loess material that rain or melting snow washed into it from the surrounding loess terraces which even now partly overhang the cave walls (see pl. 6*a*). Thus the cave with its rock inscriptions was covered with the youngest loess, the thickness of which I should judge to be between four and five feet. Unfortunately we cannot definitely state the age of this loess sediment but judging from the types of loess which I saw in the transverse valleys of the range, it must be of old alluvial or younger pleistocene origin.

THE KARAKORUM CAVE IN THE MURGISTANG VALLEY

Already in 1914 Mr. A. H. Francke² on his way from Yarkend to Leh in

² *Durch Central Asien in die indische Gefangenschaft (Herrenhut)*, 1921.

Ladakh, came across a cave in the vicinity of the Nubra valley, of which he only mentions some rock inscriptions. I should not be surprised if that cave were the same I am now going to describe. It lies in the lower part of the Murgistang valley, between the Sasser-la and Nubra at the point where the path leads down to the bottom of the ravine. The path runs a few feet below the cave (pl. 6*b*) which can be easily recognized as an old whirlpool in the upper slope of the gorge. Whether it was formed during the last glaciation, when the Murgistang glacier was joined with the Nubra glacier, or whether it has been eroded by the torrent at a later date, is a very difficult question to decide,—at any rate the cave is partly filled with a loess-like clay. As the sedimentation of loess, according to G. Dainelli,³ is limited to the glacial period and the period which closely followed, i.e., younger Pleistocene, there can be no doubt that this cave is very ancient.

The cave opens to the east and has a diameter of 6 feet, the rock is granite and its surface, as plate 6*b* clearly shows, is covered with a weathered, brownish crust, which is especially apparent on the inside walls of the cave. In this respect it is very reminiscent of the recent whirlpool holes which I saw in Himalayan river beds, all of which showed this lacquer-like brown crust. In this crust the carvings have been neatly cut (pl. 7), most of them depicting ibex hunters or riders, with every now and then a circle of a certain gate-like sign. The latter have very evidently been carved in a different manner and are made up of small holes like those in the K'un-lun cave, whereas the other carvings have been made by chipping off the brown crust. One immediately recognizes the considerable artistic standard of these hunting scenes. Especially well done are the ibex hunters with bow and arrow and the ibex themselves (likely *Capra sibirica*) with their long bent horns. These inscriptions are much better done than the ones in the K'un-lun cave, although the latter seem to me the more interesting because of their rather mysterious character. As in the first instance, these rock inscriptions continue below the sediment with which the cave is filled and are even to be found on a large stone which lies in the center of the cave. I examined the walls with especial care in search of any character amongst the inscriptions that could have belonged to a North Indian alphabet—like those near Tankse—but my search was in vain. The loess-like sediment was rather easy to dig in, and 1 1/2 feet below the surface I found a splinter of flint, pointed at one end and sharpened by little holes. I have no doubt that this was an implement as there was no flint to be found anywhere in the vicinity and the piece was artificially sharpened.

³ Studi sul Glaciale, Records of the Italian de Filippi Expedition, v. 3, no. 2.

RELATION TO ANCIENT SETTLEMENTS KNOWN TO EXIST IN THE
NEIGHBORHOOD AND POSSIBLE AGE OF THE TWO CAVES

Since the geological position of the two caves, as well as the peculiar character and technique of the inscriptions, leads us to conclude that they once sheltered an ancient race living under primitive conditions, we should investigate the question of the existence of similar or related settlements observed in that region or in its vicinity.

The best known rock inscriptions to the west of our region are those in the Russian Pamir. According to the observations made by A. v. Schultz, these are rather recent, having been made by the ancestors of the Tadschik (of Iranic origin) who even nowadays hunt the ibex with bow and arrow. These inscriptions depict exclusively hunting scenes and some few other characters which differ totally from the inscriptions shown in figure 1. The technique employed in the carving is also different, as those in the Pamirs are clearly and sharply cut out of the rock and in addition are not covered with loess. According to the German ethnologist Dr. Lenz, of the German-Russian Alai-Pamir Expedition (1928), the generation now living knows nothing of the origin of these rock inscriptions. To the north of the Alai near Osh, in the Ferghana basin, A. H. Francke^{3a} has described rock inscriptions which seem to be of a rather ancient type as he compares them to those found in Ladakh. The same explorer mentions rock inscriptions existing near a caravan halting-place in the Karakash valley (map 1, cross above curve of river), called Pigle-tagash, and, as he found no traces of inscriptions between this place and Osh, he was led to the conclusion that the Pigle-tagash inscriptions already belonged to the Tibetan type and that in this part of Chinese Turkestan no caves or traces of such ancient settlements exist. That this conclusion was premature is evident, and we can actually prove that the K'un-lun inscriptions and those known in Ladakh (Little Tibet) differ fundamentally from each other. As I have already mentioned, the Tibetan rock carvers used a different technique and besides the inscriptions show distinctly the characters of an old language, the Soghdian, which even permits us to decipher the inscriptions that tell of an old settlement of Nestorian Christians about 800 A.D.⁴ The only rock inscriptions that we can with some reason compare with the ones described above are the ibex hunters of Kharboo in

^{3a} A. H. Francke, *Felsinschriften in Ledakh*. Sitz. Ber. d. preuss. Ak. d. Wiss. phil.-hist., Kl. 31: 132.

⁴ A. H. Francke, *Felsinschriften in Ladakh* (Sitz. Ber. d. preuss. Ak. d. Wiss. phil.-hist., Kl. 31: 366) and F. W. K. Mueller, *Eine soghdische Inschrift in Ladakh*.

the northwestern Himalaya, a day's march from Dras.⁵ Here we have the same hunting scenes as those in the Karakorum cave but they are carved on a big stone on the old caravan road to Ladakh and do not belong to a loess-covered cave; furthermore, the manner of the carving is more modern and has probably been done with sharp instruments.

Unfortunately I was unable to visit the rock inscriptions mentioned by Francke, in the Karakash valley, so that I am unable to say decisively whether they show the same characteristics as those in the cave Toshuk-ong-oi, but according to what I have been able to learn both from personal and literary studies, the cave in the Kollkash valley and the other one near Nubra represent a special type, hitherto unknown in these regions. But if we look toward the east, in the farther K'un-lun, to the province of Kansu which borders on Chinese Turkestan or Sinkiang, we meet with very ancient and, what is very important, loess-covered human settlements. Here the most striking and interesting prehistoric discoveries have been reported recently by Andersson,⁶ and the ornamentation on the pottery of that ancient race shows without doubt a distinct style which entitles us to compare them with some of the signs shown in figure 1.⁷ In fact, our knowledge of the cave in the K'un-lun and the one near Nubra may lead us to the conclusion that there are traces of ancient culture in western Sinkiang, traces which may lie scattered all over the country and which are waiting to be discovered by the scientist-explorer. In this connection I should not forget to mention a find of ancient loess-covered pottery that Francke discovered near Sanju (see map 1), southeast of Jarkand, which may give a further hint to future explorers and travelers who will search for traces of ancient human culture in the very heart of Asia.

YALE UNIVERSITY,
NEW HAVEN, CONNECTICUT

⁵ Several of these rock inscriptions have been described by Dainelli and Biasutti in their work, *I Tipi Umani* (Sped. Italiana de Filippi, ser. 11, vol. 9, table 16, 19, fig. 2 and table 16, fig. 1).

⁶ Preliminary Report on Archaeological Results in Kansu. *Memoirs of the Geological Survey of China*, no. 5, Peking, 1925.

⁷ Especially the animal figures, pl. 3, fig. 2, and the ornament on pl. 7, fig. 2.

TWO MIMBRES RIVER RUINS

By EDITHA L. WATSON

THE ruins along the Mimbres river offer material for study unequaled, so far, by any other ruins in southwestern New Mexico. However, as these sites are being torn apart by pot-hunters, the notes which have been made in the course of some few scientific investigations are doubly valuable.

Notes have been made on two ruins, about twenty miles apart. These are known as the Gonzalez place, which is located near San Lorenzo, on the upper Mimbres, and the Golass place. This latter location is the one¹ which Dr. J. Walter Fewkes describes as "where the rocks come down to the river." It is also known as the "Dam Site." These names refer to a ridge of rocks which crosses the river at this point.

While the method of construction of these two ruins varies considerably, both of them are built over the walls of earlier houses, and part of the Gonzalez ruin is built over two layers of walls in this manner. Since these houses were in ruins at the time of the Conquest, one may safely attribute considerable antiquity to the lower layers, and the pottery from the third stratum of the Gonzalez place may be considered archaic, as it differs from that found above it, and is of the thick, black, coiled or plain ware considered to be very early.

Pottery found in the second stratum of the ruins resembles that in the upper rooms, and may, therefore, have been intrusive. From the manner in which the two uppermost strata have been dug over, it is impossible to state accurately more than the above.

Little work was done, at the time of the writer's visit, to the lowest stratum at the Gonzalez place. The weather was extremely warm, and only a small hole, barely large enough for one man to dig in, was made to this depth. The hole was sunk along a wall of the top room, and penetrated through two distinct floors, several feet apart. The few pieces of pottery found at the bottom of this hole were as described above, and in very good preservation.

Both the ruins considered in this paper are situated at some distance above the river, on the level of the present road. However, the Gonzalez ruin appears to have always been above the level of the water, while at the lower ruin the river has risen at times above the bench on which the houses are located and has covered them, then receded into its usual channel, some twenty feet below. This is not unusual with mountain rivers

¹ Archæology of the Lower Mimbres Valley. SI-MC, vol. 63, no. 10.

and evidently did not happen often enough to drive the Indians permanently from their homes. In one of the rooms on the upper level, a skeleton of an Indian was found who had been caught in one of these floods. The body had been driven against the wall of the room, so that the head was turned back at a right angle to the body, which was lying on its stomach. River mud, sand, and debris had packed around it and held it in this position. From the arm of this skeleton, twenty-one shell bracelets were taken.

In the last thirty years, a house has been built on this site, the builders

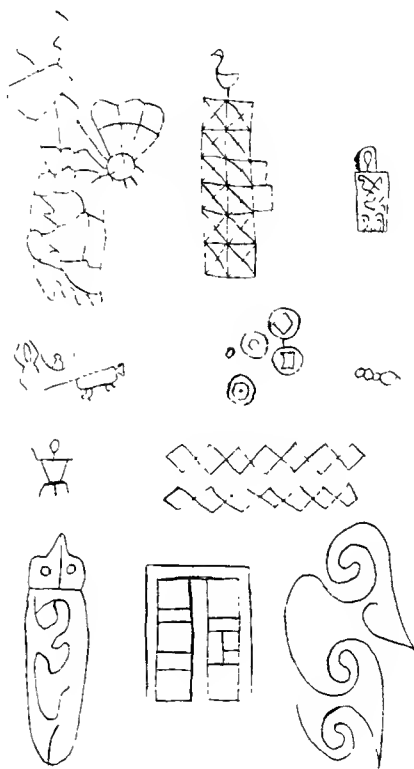


FIG. 1 Petroglyphs from Golass ruin.

utilizing the rocks strewn on the surface of the ground, which were once part of the walls of the ruin. Since this house was built, the Mimbres has risen until it covered the roof. To see it in the summer, a feeble, narrow stream, this appears almost unbelievable.

No petroglyphs or pictographs have been discovered at the Gonzalez ruin, but at the Golass place there is a bluff of considerable size behind the ruins, and this bluff is thickly engraved with petroglyphs. These inscriptions are of great variety and interest, and in some places are superimposed

over each other. Some of the designs are very realistic, while others appear to be meaningless scrawls. (See fig. 1.)

Many rocks in this place have been used as mortars and mealing pits, also. One can stand on the bluff, overlooking the ruins and the river, and imagine the scene: the women busy grinding corn in the shelter of the bluff, the activity of pueblo life, and the hunters and fishermen returning with their spoils from across the river.

The builders of the Golass ruin used more care than those of the Gonzalez place. The upper ruin is made of plastered adobe, with large rocks set in the walls. A mortar with the orifice opening into the room was placed in this way. The floors were of hardened earth.

At the Golass ruin, on the other hand, the plastered walls were more carefully made. The floors were formed of thin slabs of rock or layers of charcoal. One room had a banquette on one side.



FIG. 2. Bowl from room with banquette. Golass ruin.

(The above discussion concerns the upper layer of rooms only.)

The Gonzalez ruin was indicated on the surface by a low mound. The pottery from this ruin, while resembling that from the Golass place very closely, showed more variety. A red ware, incised in geometrical designs, has not been found elsewhere. This incised ware is thin, beautifully made, and the decoration was carefully applied.

From this ruin was taken an effigy jar, with the body of a duck and the head of a hawk.

The Golass ruin was so badly dug over that its former outlines were destroyed. Pottery found in this ruin did not include effigy ware or incised ware. However, painted ollas with concave bases were found here. (The concave base is a very rare form.) Also found in this ruin was a

bowl which had been pressed, while the clay was still pliable, into a four-sided shape. This bowl was found with an interment. (See fig. 2.)

Some of the pottery from this ruin was so thickly encrusted with a lime coating that the design was completely hidden.

Pottery with human and animal designs is not rare in either ruin. An occasional piece in three colors is found, but for the most part two colors are used, and of these black and white are by far the most prevalent.

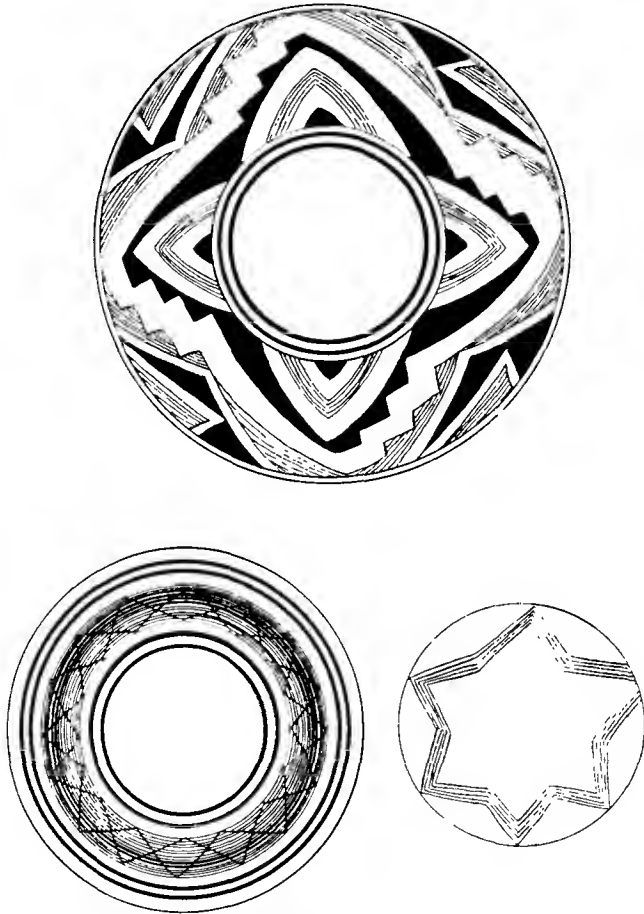


FIG. 3. Designs of bowls used in cremation burial.

Two very interesting cremation burials were found at the Golass ruin. One of these consisted of calcined bones in a small bowl about six inches in diameter. This bowl rested in a slightly larger one, and they were covered with a still larger bowl with a geometrical decoration. With this group was found a small coiled ware jug with a handle. (See fig. 3.)

In the other burial, the calcined bones were placed in a small bowl with a lizard painted in it. Inverted over this was a smaller bowl with a quail design, and these rested in a larger bowl with a fish decoration. This group of bowls and a mano were found on a metate which had been in a fire as it was blackened and broken into three parts from the heat, and the mano was also blackened. Near these was a broken corrugated olla, which

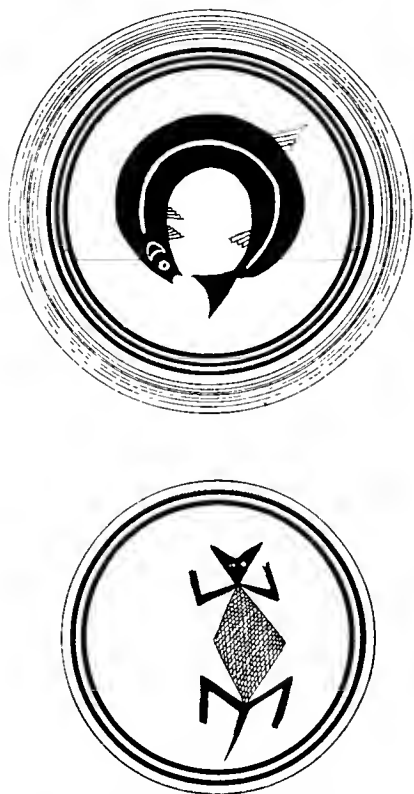


FIG. 4. Designs on two of the bowls used in cremation burials. The design on the third and smallest bowl is nearly worn away and so cannot be properly copied.

had been "killed"—a small hole drilled through the side—and burned. This burial was found in the room with the banquette. (See fig. 4.)

These two cremations are the only ones recorded from this region, and are of especial interest on that account.

It is to be regretted that these two ruins could not have had scientific excavation.

711 17th STREET,
DENVER, COLORADO

NOTES ON HOPI CEREMONIES IN THEIR INITIATORY FORM IN 1927-1928

By JULIAN H. STEWARD

None of the three regular winter ceremonies of the Hopi of First Mesa has been fully described—Wöwöchim, Soyala (Winter solstice ceremony), Powamu (the Kachina ceremony)—in its long or initiatory form. Wöwöchim is the tribal ceremony into which every youth is initiated. The year this initiation is held the ceremony is extended, as are also the following Winter solstice ceremony and the Powamu ceremony. In the winter of 1891-1892 the extended ceremonies were held, and Alexander M. Stephen described¹ the Wöwöchim (Naashnaiya), but failed to see the initiatory rituals. The Winter solstice ceremony of this year Stephen does not describe excepting the dramatization which occurs the final night in Chief kiva.² As for the Powamu of 1892 only part of the ritual which occurs on the last day—the extra day of the extended form—is described by Stephen.³ The whipping of the children in the kiva he did not see.

After 1891-2 it is not known when the initiatory forms were observed, if at all,⁴ until the year 1927-1928. When I was on First Mesa in 1920, observing the Wöwöchim in its non-initiatory form,⁵ I was told that Hani (Lesma), the Singers society chief, who is chief of the Wöwöchim ceremony, was too old to conduct the long ceremony and that he had not trained any kinsman as assistant. Two or three years later, Hani died; in 1925 I was told that a successor was found and that the following year, 1926, the extended ceremonies would take place. Actually, they took place a year later, and Dr. Julian H. Steward of the University of California visited First Mesa in February, saw parts of Powamu, and got accounts of what he did not see, as well as of the preceding ceremonies. His notes follow.

E. C. PARSONS

WÖWÖCHIM

THE ceremony is announced by the Crier chief during the first quarter of the Kele (sparrow hawk, novice) moon (November). Hoñi of the Snake clan is still Crier, but being blind,⁶ he has as a substitute his brother, Harry

¹ J. W. Fewkes and A. M. Stephen, *The Nāácnaiya: A Tusayan Initiation Ceremony*. JAFL, 5: 189-220, 1892.

² *Hopi Journal* (in proof).

³ *Ibid.*

⁴ In 1916, when Dr. Lowie visited First Mesa, he learned nothing definite about dates of celebration in extended form. I surmise that after 1916, perhaps for some time before, no such celebration was made.

⁵ E. C. Parsons, *The Hopi Wowochim Ceremony in 1920*. AA, 25: 156-187, 1923.

⁶ Cf. E. C. Parsons, *A Pueblo Indian Journal*. AAA-M, 32: 97, 116, 1925.

Supela. Námuki, Hani's sister's son,⁷ or sister's daughter's son,⁸ is now Singers' chief.

In Chief kiva the new fire was made with the fire drill by Dewówuna, of the Kokop clan (Cedarwood-Coyote-Masaû clan, referred to in English as the Fire clan).⁹ The fire is carried to all the kivas, where it must not be allowed to go out during the subsequent ceremonial.

New details¹⁰ were given about the trips for soap-weed and greasewood undertaken by the novices. The novices of Singers, Wówöchim, and the Horn society with a leader referred to as "Alosaka" together descend the mesa to the south. Alosaka draws a line of corn meal, which is to be the starting line. As the boys come up, he asks, "What is your name?" Each boy tells his name. He then says, "Now boys, if you catch me before we get to that mountain, Sistávatekwi (a butte twenty miles or so to the south), we shall come back again. If you do not catch me, we will run all the way there. You must stay here until I get to that point." And he indicates a point about a mile and a quarter away.

Alosaka departs, and when he reaches the point indicated the boys start in pursuit. Usually he is overtaken within ten or fifteen miles. As each boy overtakes him, he is seized and held until the others arrive. Alosaka may say, however, that he was just practicing and in that event another short race takes place. If he is soon overtaken the second time, he generally yields and they stop. At this time they have a light lunch of sweet corn meal dough which one of the boys has carried. A man on horseback has brought them water.

After eating they turn back to the mesa. All must run, picking soap-weed as they go. The boys must continue to run, even though exhausted. Each is accompanied, however, by two men, usually his father and uncle who care for him. As the boy picks the soap-weed he hands it to his father or uncle, who rolls it up and returns it to him to tie around his waist. The boys may not all arrive at the mesa before sundown.

At the line of the start each has deposited his ritual corn ear and the place has been left in the charge of some old man. When the boys return, they pick out their ritual ears from the pile and proceed to the mesa and

⁷ Hopi Journal

⁸ R. H. Lowie, Notes on Hopi Clans. AMNH-AP, 30: 314, 1929

⁹ Fire is made by two Agaves and two Horns (Fewkes and Stephen, 194-5).

¹⁰ Dr. Steward was also given an account of the initiation ritual proper which was described as like that of Powamu with a kachina sand painting and whipping by the Tunwub kachina. The account seems to me questionable as at this season kachina do not appear in Walpi.—E.C.P.

back to their kivas. No one may eat, however, until all have returned. Then the boys may go to their own houses for an ear of white corn and bring it back to the kiva to eat, kernel by kernel.

That night each boy has his hair washed by his "father" with the soapweed brought in. While this is being done the boy stands on a sand painting of clouds.¹¹ He is not allowed to fall asleep until each boy in the kiva has had his hair washed. That night all the women in Walpi must leave the town and find lodging in Sichumovi or Tewa. After the boys have had their hair washed, they leave their kivas and walk about Walpi "talking to bring them good luck." Two boys impersonate whirlpools and whirl their bodies around as they walk. All night the boys must continue to walk through the village, taking short rests, however, at intervals.

The following day the "fathers" of the boys who have been in the race commence to make moccasins for them.

While the novices of the Singers, Wöwöchim, and Horn societies have been racing, the Agave novices in Goat kiva have been required to remain in kiva all day. There they must sit against the wall, legs drawn up close to the stomach and arms flexed over the chest, wrapped tightly in a blanket. All day they must sit in this position and only when all of the racers have returned are they permitted to stand up and stretch themselves, when they are rubbed.

Two days after the racing trip for soapweed, the Agave novices have a race. This is to secure wood. Below the mesa on the east side is drawn the meal line. This time the boys are to be pursued by the old members of the Agave society. Each boy is held by his "father" until the signal to start. All start together. It is said that if some of the boys are good runners they may run fifteen or twenty miles before all are caught.

When all have been overtaken, they start back. On the return all walk, the boys picking up greasewood, which they carry on their backs. When they arrive at the mesa, they ascend by way of Tewa and proceed directly to Goat kiva.

The last night of the ceremony there is a fire dance in the court by the Agaves. Wood has been collected from each house for the fire. After sundown, as dusk¹² is approaching, the Agaves come out to dance. Their dance starts in the kiva, where they first stand in a circle, each man interlocking fingers with the man next to him. They must take great care not to lose their hold lest they have bad luck. In this way they proceed slowly up the

¹¹ Not observed by Stephen. See Fewkes and Stephen, 206

¹² Dawn (Hopi Journal)

kiva ladder, to the plaza, and around the fire four times. They continue with interlocked fingers. They must proceed with great caution lest any man lose his grasp of his neighbor's hand. The dance is slow and deliberate and it is nearly dawn when the men are back in kiva.

Early the following morning the novices are taken by their ceremonial fathers to his (the "father's") mother's or sister's home. His mother and sisters wash the boy's hair and put corn meal on their own faces. They give the boy a *kömi* (a cake about 18.6x2 inches of sweet corn meal ground fine and made into dough). They also present him with a blanket or shirt, pants, etc., place the *kömi* on his back, and take him home to his own parents.

At this time the boy's mother must commence to grind blue corn into meal. When she has ground the equivalent of a tubful, packed solid, this is put into a container or tub and a pot is buried within the meal. This is returned to the "father's" mother and sisters, who have given the boy presents.

WINTER SOLSTICE CEREMONY

Auhalani, the *kachina* of the Patki clan who appears in this ceremony, a ceremony in charge of the Patki clan, was impersonated by Mauwa.¹³ When he died his nephew, Givina, was too young to take his place, so Givina's father, Náto of the Denyo (Pine) clan,¹⁴ has been substituting for him since 1924.

The blue corn ears in the basket trays carried by Auhalani's sisters in their public dance are given to Guya¹⁵ and Yuna¹⁶ of the Patki clan (Corn lineage). They place the ears on top of the corn store in their own houses "to bring the people good luck."

POWAMU

Although the Powamu ceremony is regarded as commencing with the first appearance of the new moon in the latter part of January or the first part of February, it is anticipated some time before this,—at approximately

¹³ Or Mawa. Patki clansman, and Sun chief or watcher. He died in 1924 (*A Pueblo Indian Journal*, 14). His uncle was Sikyaustiwa, who impersonated Auhalani in his day except when he was lame, when his son impersonated for him. So here we see in this impersonation of Auhalani at different periods a son impersonating for his father and a father impersonating for his son, both impersonations of course falling outside of the clan—temporarily.

¹⁴ A lineage of the Tewa Bear clan.

¹⁵ Lalakon chief, daughter of Koyanumka, daughter of Kwumawunsi. (*Hopi Journal*) According to Lowie, 316, she is an adoptive daughter, actually of the Greasewood lineage of the Reed clan.

¹⁶ Lalakon chief. Another granddaughter of Kwumawunsi. (*Hopi Journal*)

the preceding full moon. At this time Dalauwine,¹⁷ the Kachina chief, plants a box of corn¹⁸ in Chief kiva. This corn is to be carefully tended¹⁹ and is for Ahül kachina to distribute during his "rising" several days after the beginning of the ceremony.

January 22. On this day the new moon appeared. Kachina chief looked for it, but was unable to see it on account of clouds. He must actually see it.

January 23. The Kachina chief looked again for the moon and was successful in seeing it. This day²⁰ is not counted as part of the ceremony. The following day is the first day.

January 24. 1st day. On this day the chiefs have their hair washed and then enter Chief kiva, where they are to stay and take their meals during the following sixteen days. Among those who enter Chief kiva are Kála, Kachina chief, and Daláuwine, the brother who substitutes for him, Hó'oni, Crier chief and chief of Snake clan, and Harry Supela, his brother (cousin), who substitutes for him as Hó'oni is blind, Aña, the Sun watcher,²¹ Námuki, Singers chief, Múktó, head of Horn kiva, Lé'eteo,²² impersonator of Ahül kachina.

Prayer-stick Making Ritual

At night is performed the "raising up of the sun" in Chief kiva.²³ The part of Ahül, the Sun kachina, is taken by Lé'eto of the Rabbit clan. Ahül lies down late in the evening and then slowly commences to raise himself, singing as he is doing so, and putting on his mask. It takes all night for him to rise.

¹⁷ The office of Kachina chief, i. e., chief of the Kachina or Powamu society, is filled by the chief of the Kachina clan. Siwanekála or Kála is actual head of the Kachina clan and should therefore hold this position, but, as he is blind, the active duties are performed by his brother, Daláuwine. According to my informant the brother has preference over the nephew in matters of substitution and succession.

¹⁸ Beans. The corn is planted in the house of the Kachina clan mother. (Hopi Journal.)

¹⁹ Presumably the growth is an omen of the coming season. (See A Pueblo Indian Journal, 34.)

²⁰ In the evening, the smoke talk which in 1893 was in the maternal house, not of the Kachina chief, but in that of the Town chief (Horn clan chief and chief of the Flute society). (Hopi Journal.)

²¹ Patki clansman, older brother and successor to Mawa, after 1924. In 1920 Anga was referred to as a rain chief, performing a secret undescribed ritual with the chief of the Wintersolstice ceremony, also a Patki clansman. (See A Pueblo Indian Journal, 81, 87, 88, 89.)

²² Presumably Letaiyo, Tobacco (Rabbit) clansman, son of Intiwa formerly Kachina chief. (Hopi Journal.)

²³ Not observed by Stephen.

January 25. 2nd day. At daybreak Ahul kachina is accompanied by Daláuwine, Kachina chief, to the Gap north of Tewa. Here he dons his mask again and lies back against a rock facing toward the rising sun. As the sun comes up, he slowly raises his body, so that by the time the sun is above the horizon he is standing erect.

Daláuwine then conducts Ahul through the mesa, going ahead of him and sprinkling corn meal on the ground from a plaque. Ahul carries a fox-skin bag filled with corn meal, a hooked cane (because he is supposed to be very old), and the corn (and beans), which were planted in the middle of January.²⁴

These two proceed up the road from the Gap to Tewa. The places visited²⁵ are as follows:

1. Pendete (the corner kiva, Tewa).
2. Bear clan house, Tewa (where Satéle, Tewa Town chief lives).
3. Corn clan house, Tewa (owned by Námpaño, a woman).
4. Tobacco clan house, Tewa (owned by Ókan, a woman).
5. Kisun or Court kiva, Tewa.
6. Corn clan house (owned by Hó'le, sister of Alan²⁶).
7. Bear clan house, Tewa (owned by a young woman²⁷).
8. Cloud clan house, Tewa (owned by Boléhuŋka, sister of Sa'ípa,²⁸ a man).
9. Stove kiva, Sichumovi.
10. Butterfly kiva, Sichumovi.
11. To a rock at the south end of Sichumovi.
12. Goat kiva (this and the following in Walpi).
13. Horn kiva.
14. Horn clan house.²⁹
15. Nasava^u kiva.
16. Wikwalvi¹ kiva.
17. Chief kiva.

Ahul performs rites at each kiva and house visited. At Corner kiva of Tewa, the first visited, he climbs to the roof. Standing to the east of the

²⁴ Compare J. W. Fewkes, Hopi Kachinas, BAE-R, pls. 7 and 21, *A Pueblo Indian Journal*, fig. 16.

²⁵ Aside from the kivas, these are the houses in which the society tiponi or supreme fetiches are kept, the maternal houses of the society chiefs. Compare list of places visited in 1920 (*A Pueblo Indian Journal*, 47-48).

²⁶ In 1920 Corn clan chief and chief of Court kiva (*A Pueblo Indian Journal*, 113). In 1893 prayer-stick making for the Tewa clown society was held here. (*Hopi Journal*.)

²⁷ Here is kept the Bear kachina mask, the old man (w·ye) of the Bear clan. (*A Pueblo Indian Journal*, 47.)

²⁸ Probably K'elang, chief of the Sumaikoli society. (*Ibid*.)

²⁹ Maternal house of Tu'unó^o, the Town chief and chief of the Flute society.

hatch facing the opening, he bows down four times very slowly, saying "ha *oo-oo-oo-oo-oo*" in a falsetto which lasts to the limit of his breath. After this he takes a handful of the finely ground white corn meal from his sack and, bending down, pastes it on the lower side of the hatch. The kiva chief then comes out and sprinkles corn meal toward him four times, gives him four prayer-sticks, which the men in the kiva have made for him, and receives one of the nine bundles of corn (and beans) carried by Ahul.

This ritual is repeated at each kiva. Where, however, there is a Tobacco clan man in the kiva, he comes forth with the chief of the kiva and, standing in front of Ahul with a pipe, blows smoke toward him four times. At Corner kiva there is no Tobacco clan man. Both Corn and Tobacco clans, however, are represented at Court kiva, and also at Stove kiva. Sichumovi, so that the double ritual is performed at these kivas. At Corn clan house, the owner of the house sprinkles corn meal on Ahul four times, and at Tobacco clan house a man blows smoke toward him four times.

At each house Ahul pastes corn meal on the door, taking it in the palm of his hand and rubbing it from near the bottom of the door upward. The owner of the house then sprinkles corn meal on him, presents him with one prayer-stick, and thanks him. After Ahul has left, the corn meal is removed from the door and each householder rubs some of it on his face "for long life."

When Ahul arrives at his eleventh stop, the rock at the southern end of Sichumovi, he bows four times and sprinkles corn meal as he has done at each house. This is for the houses to the north, in Sichumovi, from which the people then come to sprinkle corn meal on him and to present him with prayer-sticks.

At the house of Tü'üno', Walpi Town chief, corn meal is sprinkled on Ahul and smoke blown toward him from a pipe, as there is always a Tobacco clan man in this house.

At Chief kiva, Ahul makes his final stop and performs the same ritual as at other kivas. First the Kachina chief, Kála, comes out of the kiva with the vessel of medicine water, which he sprinkles to the east, south, west, north, zenith, and nadir. Then Námuki, Singers chief,³⁰ comes out and blows smoke toward Ahul as has been done at other places visited where a Tobacco clan man is present. After this, Ahul is given four of the prayer-sticks which the chiefs have made on the first day in Chief kiva. The remainder are buried in the corn fields the following day, excepting four sticks kept permanently by Kachina chief which he repaints black each year.

³⁰ This ritual is performed by Námuki, not as Singers chief, but as Tobacco-Rabbit clan chief.

His tour of the mesa thus completed, Ahül descends to Kuwáwaimuvek³¹, where he bows four times toward the sun and places the prayer-sticks on the shrine with the prayer: "Give my children good luck, long life, happiness, health, good crops, etc."

On this day the planting of the beans commences. Every member of each kiva plants his own box of beans. These represent the corn fields and are omens for the coming crops. In order that those who are away at this time or for any reason are unable to plant may have the opportunity to do so, a period of four days of planting is allowed.

Pots, boxes, tin cans, or any convenient small containers are used. The sand for the purpose is procured from a sand slope, which now supports a small orchard of peach trees, east of Tewa just below the wagon road which ascends to the mesa. The beans are covered with one half to one inch of soil, watered regularly morning and evening, and carefully tended. Each man cares for his own beans, but all fetch wood, as the fire must be kept up to keep the kiva continuously warm.

On this day the chiefs in Chief kiva take the prayer-sticks made on the first day which are not already disposed of and bury them in their corn fields.

Many of the kiva members may now commence to weave, making kilts, sashes, and girdles for costumes to be worn in the kachina dances.

January 26-28. Beans may be planted.

February 1. 9th day. On this day (which is eight days after the beans have first been planted), Hahái'i wuqti⁴² and the Natá'aska³³ kachinas go around.

Daláuwine, acting Kachina chief, announces on this day that four days hence the children are to be whipped in their initiation to the kachinas.

The members of all the kivas commence to practice their songs and dances for the "Bean dance," Powamu kachina dance, which is to be held during the last night. The dancing is in the nature of a rehearsal and is done without masks.

The kiva members also commence to work on the presents—figurines, rattles, moccasins, etc.—which are to be distributed to the children on the morning of the final day.

Sufficient wood is now brought into the kivas to last until the end of the ceremony.

The children are taken into the kivas by their ceremonial fathers about

³¹ Shrine at the southwest point of mesa

³² Compare Fewkes, pl. 7; *A Pueblo Indian Journal*, fig. 18.

³³ Compare Fewkes, pl. 9, *A Pueblo Indian Journal*, fig. 19.

three or four o'clock in the afternoon. The "father" is a man in any clan other than those of the child's true mother and father, to whom the child is "given" by his mother. The same "father" sponsors him in the Wówöchim ceremony.

The "father" goes first to the boy's house and takes him to his own. Here he has made a small prayer-stick of four feathers tied to the end of a stick. He next selects a perfect ear of corn, to the end of which he fastens the prayer-stick. This is given to the child to carry. They now proceed to Chief kiva, where the chiefs have assembled.

As the children descend the ladder, a man stationed at its foot grasps them under the arms before they step on the ground; taking them in his arms, he passes them to a man at his right. In this manner they are passed along the western wall of the kiva to its southern end, and across the southern wall to the southeast corner. Here they are placed sitting on the floor in a row along the wall. When there is no more room along the southern wall, they are set along the western wall from south to north.

In the center of the dance space of the kiva is a sand painting of Du'mas³⁴ kachina and her two sons, Duñwup³⁵ kachinas. This is surrounded by a rainbow in the shape of an arc. In front of the sand painting is a square pot of medicine made of hñ!api roots.

Meanwhile three men who are to impersonate Du'mas and Duñwup kachinas have descended to Kuwáwaimüvek', where they dress.³⁶ The Duñwup kachinas each carry willow switches in their right hands. Du'mas kachina carries a plaque of corn meal. When they are ready, Du'mas kachina calls to her children in a loud voice that may be heard on top of the mesa, "We are going up on top of the mesa to see our people. We are going to the kiva to see the children who do not obey their parents." Du'mas kachina now walks rapidly, followed by her two sons who trot with short steps. When they arrive at Chief kiva, they go around it four times clockwise, and then enter. Inside the kiva they make a circuit four times in the same direction. The fourth time around, Du'mas kachina stops at the ladder "so that nobody will run out."

When Du'mas and Duñwup kachinas come to a stop (the latter, however, continuing their trot as a sort of mark-time), Kachina chief asks them why they have come. Du'mas kachina motions toward the children and says, "They do not obey their mothers and fathers. We are going to help you old people so that they will mind you." Kachina chief replies, "Of course they

³⁴ Compare Fewkes, pl. 7, *A Pueblo Indian Journal*, fig. 21.

³⁵ Compare Fewkes, pl. 7; *A Pueblo Indian Journal*, fig. 22.

³⁶ These parts are taken by any members of Chief kiva.

do not mind us. But I would rather be on my own children's side than on your side. They do not mind us, but I will take care of my children." Dü'mas kachina insists, however, that the children must be made to obey, and Kachina chief yields. But he asks them not to use the willows to whip the children. The kachinas consent to this and yucca blades, which have already been brought to the kiva for the purpose, are substituted. Kachina chief then says, "They do not mind us, so we will let you try to make them obey. We will let you force them to keep these things a secret [i.e., the initiation]. But you have to whip me before you can do it to my children." Kachina chief now steps to the middle of the sand painting and faces toward the north. One Duñwup kachina stands in front of him, the other behind him. He bows and the one to the south strikes him on the back four times with the yucca whip, whirling the whip above his head after each blow. The Duñwup kachinas then change places, and the other whips him in this manner.

The whipping of the children now commences. The first child to enter the kiva, i.e., the one sitting in the southeast corner, is taken first. He steps to the painting and faces toward the north. His "father" stands in front of him and as the child bows, his "father" leans over him and grasps him around the body under the arms. The Duñwup kachina standing behind the child, to the south, now whips him four times, whirling the whip after each blow. Each time he is whipped, his "mother"³⁷ sprinkles corn meal toward him. As the Duñwup kachinas change around, the "father" takes the child's place and is whipped four times by the other Duñwup. Kachina chief then comes forward and gives the neophyte four drinks of hóñlapi in a scallop shell. The neophyte now returns to his seat on the floor and the next child steps forward to be whipped.

After the last child has been whipped, four or six Goyemshi kachinas come out of a door in the southwest corner of the kiva. They have gone in there before the ritual commenced and remained hidden throughout. The Goyemshi carry corn tied into bundles of four. One bundle is given to each child.

Kachina chief now takes the whip from the Duñwup kachinas and says, "This is the way we initiate to the kachinas. You children must not tell how this thing is done to other children who have not been initiated. If you do tell, these kachinas will come around to you and whip you until they cut your flesh." The children have been well frightened and never tell.

The "father" of each neophyte now takes one of the four feathers from the ritual ear and stick which the child still holds and ties the feather to the

³⁷ His "father's" wife.

top of his head. Kachina chief tells them that they may not eat salt for four days. Early in the morning of each of the next four days the initiate takes one of the feathers, together with some corn meal, and goes to the shrine at the head of the trail leading down the mesa from Sichumovi. The corn meal is held close to the mouth and addressed: "Give me long life so that I may become very old. Give me happiness. Always keep sickness from me." The corn meal is then placed on the shrine. The feather which was tied in the hair is also deposited, and the child runs back to his house. Another feather is then taken from the ritual ear and stick, and tied on his head. This performance is repeated at dawn for four mornings. As the last morning is the one before the "Bean" dance, the child must make his offerings and prayer to the shrine before the kachinas appear to distribute presents.

Henceforth the boys may take part in the kiva activities and impersonate kachinas.

After the whipping of the children, Kachina chief gives Dū'mas and Duñwup kachinas each a handful of turkey feathers, which he tells them are clouds and requests them to "take these home to their people and ask them to send rain and good crops." The kachinas take the feathers and leave the kiva, circling it four times, the Duñwup kachina still trotting (which they have continued throughout the performance), and then go down to Kuwá-waimuvek'. When they arrive, Dū'mas kachina places the feathers on the shrine and addresses a prayer to the Clouds: "Here, we have brought you these feathers which our fathers handed to us to ask you to bring rain to the crops and make them grow." The Duñwup kachinas then place their feathers on the shrine and say the same prayer. These three kachinas now disrobe, wrap their costumes and masks in blankets, and return with them to Chief kiva.

In the evening the kiva members practice the various kachina dances, especially the maskless Powamu kachina. Two of the kivas, however, do masked kachina dances, dancing at each kiva.

It is said that when the kiva groups make the rounds to dance they are "visiting to see how the plants (i.e., the bean sprouts) are growing." When they arrive at each kiva, they may be heard talking and muttering in a falsetto. The head of the kiva then calls, yún̄ya-ai (come in) and is answered by "hu-hu-hu-hu" in a falsetto. As the dancers enter, they always pass around to the right, i.e., the west, of the ladder, where someone sprinkles corn meal after each man. The leader of the dancers presents to the head of each kiva a perfect ear of blue corn. These ears are kept by him for planting. As the dancers pass around the end of the kiva where the beans are growing, they shake their rattles just over the tops of the sprouts.

One group of dancers came from Kisun kiva³⁸ and impersonated Sio (Zuñi) Humis kachina.³⁹ There were no female impersonations. The dancers entered the kiva, filed around to the right of the ladder, and took their places around the wall in the dance space to await the signal to commence the dance. The signal was given by the leader, who stood in the middle of the row of dancers and shook his rattle vigorously. The step was executed in double time, the left foot being thrust out, the right foot lifted several inches above the floor. The dancers shook rattles carried in their right hands to the time of the music.

Another group of dancers from Horn kiva made the rounds of the mesa and impersonated Ma kachina.⁴⁰ The masks of Ma kachina had white faces with "rabbit sticks" in the form of a black crescent on each cheek. The dancers carried a rattle in the right hand and a bow and arrow in the left. There were fourteen or fifteen of these dancers who formed a single straight row the length of the kiva in the middle of the dance space. The step was like that described for Powamu kachina below, and the dancers faced about at short intervals.

February 5. 13th day. At dawn the children who have been initiated to the kachinas must take a feather and corn meal to the shrine as described above.

In addition to the practice for the Powamu kachina dance, two more kivas made the rounds on the evening of this day: Horn kiva danced Navaho kachina⁴¹ and Chief kiva danced Mountain sheep kachina.⁴² The Navaho kachina, upon entering the kiva, passed around to the right of the ladder, stamping the right foot three times, then the left foot, until all were in place, when the leader shook his rattle as a signal to commence the dance. The step was like that described below for the Powamu kachina. There were female impersonations.

In Mountain sheep kachina, each carried a stick, which was used as a cane when entering. The step was executed in double time. While dancing, they moved the hands back and forth across the chest: the right hand with the stick was raised when the left heel was lifted.

February 6. 14th day. The children again went to the shrines at dawn.

Only one kachina dance was given on this evening. Wikwalvi⁴³ kiva gave Aña (Long hair) kachina.⁴³ As these dancers entered the kivas, they

³⁸ From now on Dr. Steward is eye-witness.

³⁹ Compare Fewkes, pl. 5.

⁴⁰ This is the "Hunt" kachina. Compare Fewkes, pl. 49.

⁴¹ Compare Fewkes, pls. 27, 36, *A Pueblo Indian Journal*, fig. 34.

⁴² Compare Fewkes, pl. 40.

⁴³ Compare Fewkes, pl. 32, *A Pueblo Indian Journal*, fig. 26.

passed around to the right of the ladder and as soon as each had stepped down to the dance space, he stamped his right foot three times, then his left one as he moved on to take his position preparatory to dancing. The male impersonations were followed by six female impersonations, carrying a spruce twig in each hand. All danced in a single straight row the length of the kiva and without drum.

February 7. 15th day. The children make their third offering to the shrines at dawn.

Wikwalvi⁴⁴ kiva again performed in the evening, dancing Chaqwáina kachina. This dance was similar to that described for Navaho kachina. Each dancer carried a rattle in his right hand and a bow and arrows in his left with which he motioned while dancing.⁴⁴

February 8. 16th day. At dawn the children who have been initiated to the kachinas make their fourth and last trip to the shrines. They return quickly to their houses and soon after the sun has risen, the kachinas who are to distribute presents may be seen running or hobbling about the mesa. Among these kachinas were Huhuwa,⁴⁵ who runs cross-legged, Kwívi,⁴⁶ the "sport," so named because he wears a great deal of silver, Héhe⁴⁶,⁴⁷ who carries a rope which he whirls as he goes, Hu, Bear, and Panwu⁴⁸, Mountain sheep.

The presents carried by the kachinas to the children are kachina dolls, highly colored rattles with turkey feathers, moccasins, and bundles of bean sprouts. The beans growing in the kivas have been cut at dawn and done up into little bundles, one of which is given at each household with the presents. The beans have reached a good height and are regarded as a favorable omen of the coming crops. After being presented at the houses, they are cooked up and served for breakfast. I was served⁴⁸ with a savory mess of these sprouts cooked with an ear of white corn.

The kachinas continued to run or hobble up and down the mesa, their bells jingling or turtle shell rattles clicking until about breakfast time. About this time three men, naked but for breech cloths, appeared running wildly about the mesa, emitting loud whoops. These were three of the beggars, Soyuko, who were later to make the rounds of the mesa. They stopped for a moment at a puddle between Walpi and Sichumovi to break the ice and bathe and then ran tumultuously away.

⁴⁴ At midnight the beans are cut. Watching them in vaticination has ceased this afternoon. (A Pueblo Indian Journal, 51.)

⁴⁵ Compare Fewkes, pl. 21.

⁴⁶ Compare A Pueblo Indian Journal, fig. 35.

⁴⁷ Compare Fewkes, pl. 11, A Pueblo Indian Journal, fig. 20.

⁴⁸ I arrived on the Mesa late February 6; but I was not admitted to the kivas until February 8, and then only to the public performances.

All was quiet now until about ten o'clock in the morning, when the Soyukö appeared. These were Hahái'i wuqti and Nata'aska, accompanied by several other kachinas returning to the houses of the children "for the rabbits" which on the ninth day they had ordered the children to catch for them. The eleven Soyukö filed through the villages in the following order:

Hahái'i wuqti, the "mother of the kachinas." (Fewkes, pl. 12.)

Nata'aska, the "father of the kachinas." (Fewkes, pl. 12.)

Nata'aska mána, the "sister of the kachinas." (Fewkes, pl. 12.)

2 Héhe'e.

3 Nata'aska kúmbi (black Nata'aska).

2 Nata'aska kócha (white Nata'aska).

Nata'aska pála (red Nata'aska).

There were three groups of Soyukö, all the same and one from each village, but all in each group from the same kiva. The privilege of taking these parts rotates among the kivas in each village. This year Walpi was represented by Goat kiva; Sichumovi, by Butterfly kiva; and Tewa, by Pendete.

As the Soyukö went through the villages, they muttered and talked in falsetto voices. From house to house they went, and at each door Hahái'i woman addressed the child: "We have come for the rabbit which we told you to kill for us." It was said to have been customary for the children to bring forth a mouse on the end of a stick and say, "You did not come back when you said you would, so this is all we have left." Although I observed the Soyukö at many houses, I did not see any mice offered them. Hahái'i woman said: "We have come for you. You have been bad. You do not mind your parents. You are mean to other children and are always fighting." The child having cowered behind his mother or hidden in a corner at the first approach of the Soyukö now cringed away and cried with terror. The mother attempted to buy off the Soyukö with gifts. First a plaque of corn meal was offered, which the Soyukö accepted and turned over to the Héhe'e, who put it in a large sack carried for the purpose. Not satisfied with this, they continued to talk and threaten, and the two Héhe'e went into the house with their ropes after the child, often slipping the rope over his foot or around his waist and pretending to tug at it. The child screamed in terror and Hahái'i woman continued to mutter and threaten, and Nata'aska angrily to stamp his staff on the ground. Meanwhile the black Nata'aska, who stood in the background marched forward and backward, always muttering and dragging their saws on the ground. About this time the mother presented the Soyukö some waferbread, but, still unsatisfied, they continued their menacing attitude. Pieces of mutton, which were

turned over to Nata'aska maid to carry in the tin wash boiler which she held on her back generally appeased them and they departed, still mumbling and muttering, to the next house to repeat the performance. Frequently the Héhe^e lagged behind, stumbling with their sacks, tripping on their own ropes, or performing some clownish stunt.

After the houses of the villages had thus been accosted, the Soyuko carried their assault to the kivas. In Sichumovi they went first to Stove kiva. While the black Nata'aska remained on the ground, the others climbed to the roof and demanded food of the inmates of the kiva. These seemed defiant, and a long conversation followed, to the great amusement of the large crowd of villagers (mostly women) which had gathered to witness the proceedings. Only bit by bit did the kiva satisfy the requests of the Soyukö. Meanwhile the Héhe^e capered on the roof and tried to lasso every kiva occupant who dared thrust his head through the hatch.

Finally satisfied at Stove kiva, they went to Butterfly kiva—their own—which immediately adjoins the former. There they were told to wait and that some girls would be ready for them. They went away to a house in Sichumovi and soon returned to Butterfly kiva.

When the Soyukö returned, instead of girls, several young men were sent out of the kiva to greet them. This caused considerable mirth among the spectators. Then five young boys—ranging in age from approximately ten or twelve to sixteen—came out, with blackened faces and clad in dresses and girls' hats. A roar of laughter greeted this.

Everybody now went to the court in Sichumovi and here the five "girls" played basket ball⁴⁹ with the three Héhe^e. The referee wore a long beard and had a whistle hung around his neck. The game was spirited and boisterous and no attention whatever was paid either to the rules of the game or to the referee. The Héhe^e were full of buffoonery, and soon the game degenerated into a rough-and-tumble.

After the basket ball game the Soyuko returned to the kiva, followed by the crowd. Here the kiva members lined up and sang, accompanied by a drum, while the Héhe^e danced, "American" fashion, with the "negro girls," hopping about with a nondescript step. One "girl" took Nata'aska to dance, while one of the Héhe^e singled out a fat old woman from the crowd. The last two capered with great verve, but the woman was soon left panting and exhausted. She was rewarded with a leg of mutton from

⁴⁹ The American game, with baskets rigged up high at each end of the court. In 1893 the game played was *sūñwúwīñpa*, in which the ball is attached to a looped string, the player lying on his back, with the loop over his great toe, and slinging ball and loop high over his head. Played by kiva chief and two others against the Heheya. (Hopi Journal)

the Soyukö collection of spoils. During the dance a Héhe^e tried to run away with one of the "girls"—the Héhe^e are believed to be very fond of girls—but was brought back by the headman of the kiva.

The dance was over about 5 P.M. and the dancers and the Soyukö retired to the kiva and the crowd dispersed.⁵⁰

After the Soyukö retired, all was quiet. The women cooked supper and the men prepared for the Powamu dance or "bean dance," which was to be held later in the evening.

About 9:30 I went into Kisun kiva in Tewa, where I found a dozen or more men, some sleeping or smoking, some practicing their songs or preparing their regalia. As the dancing was not to start until two or three o'clock in the morning, I lounged and watched preparations. As I waited, Satéle (Tewa Town chief) came in and addressed me as "grandson." I observed that at the south end of the kiva there were about fifteen boxes, pots, cans, etc., in which corn sprouts about one foot high were growing. These were to be cut the following morning, but in order to conceal them, as well as various kachina masks hanging on the wall at that end of the kiva, from the eyes of the uninitiated, a curtain was hung across the kiva.

Most of the members of each kiva participate in the Powamu kachina or "bean dance." Thus each kiva has usually twenty to thirty dancers. Each kiva, except Nasava^e kiva in Walpi, which has not sufficient members, sends out a group of dancers. Thus eight groups of dancers make the rounds of the mesa, dancing once in each kiva. A spectator remaining in one kiva therefore witnesses eight separate "acts."

The audience is made up almost entirely of women, who bring their children, even small babies. Men too old to dance, as well as the kiva head, who officiates as host during the dances, also attend. There are in addition usually a number of visitors.—Hopi from the other mesas, even Indians from other tribes. This year there were two Zuñi men and a woman, and a number of white visitors, mostly from the agency or school.

The dancers occupy the larger end of the kiva, while the spectators sit packed and huddled together on the raised portion to which the ladder descends,—usually the north, but in a few kivas the east, end.

Seven of the kivas danced Powamu kachina.⁵¹ Horn kiva danced Flute

⁵⁰ When the Soyukö came to the house of my informant, his son who is quite proficient in speaking Navaho, was brought out of the closet where he had been hiding and told to answer them in Navaho: "I can't understand your language and do not know what you are talking about. So go away and don't bother me." This was taken by the Soyukö with a laugh, but they were none the less insistent and gave him rather more than his share of plaguing.

⁵¹ Compare Fewkes, pls. 14, 22

kachina.⁵² During the evening the men prepared their regalia and paint. The first stripped and painted themselves. The right shoulder and left forearm were painted bluish green; the left shoulder and right forearm, tan; and the remainder of the body above the waist, red. On each upper arm were painted two longitudinal stripes, one of bluish green, the other of tan, and two similar stripes were painted longitudinally on each side of the breast. The legs were also painted red with two stripes on each.

On the head were worn three "squash blossoms." These were made of corn husks and had three petals each, each petal painted red and green. Most of these had been prepared during the evening. The collar consisted of longitudinal sections of straw separated by pieces of black "leather (?)." A red bandoleer crossed from the right shoulder to the left hip. The common white cotton kilt was worn, and an embroidered sash hung over it from the right hip. Moccasins completed the dress. In addition to this, all available jewelry was utilized. Each man wore all the necklaces he could procure—turquoise and coral were most esteemed—and many bracelets. A rattle was carried in the right hand; the left hand was free.

Approximately half of each group of dancers were dressed in this way. The other half represented Powamu kachina maids, sisters of the Powamu kachina. Many of these were dressed in regulation woman's garb—dark dress, woman's girdle, blanket, moccasins, and wrapped leggings—and had their hair whorled. Some wore short skirts, hats, and high-heeled shoes, one even carrying a purse. Others merely slung blankets over their shoulders and did not even remove their riding-boots. Sombreros and cartridge belts with six-shooters hung about their waists outside the blankets completed the incongruity of several "maids." Each "maid" wore on his forehead a circular sunflower about four inches in diameter made of pleated paper and held a spruce twig in front of his face with his left hand.

Most of the groups of dancers had, among the Powamu kachina maids, one or two "women" with Hehe'e-like masks with long chins. These "women" were always raggedly attired in a miscellany of old clothes, and carried canes.

At about midnight a man entered Kisun kiva to announce that the kachina were ready and were coming. He returned at about one o'clock to make the same announcement, and again an hour later. Shortly before 3 A.M. the dancers, now in full regalia, performed their dance and left the kiva. The spectators crowded in.

Soon shouts and talking in falsetto voices could be heard from the roof, and the kiva chief who acted as host, as well as one or two other men with

⁵² Compare Fewkes, pl. 39.

him, set up a shout of "Yunya ai, yunya ai!" ("Come in, come in!") The Powamu male kachina entered first, followed by the female. Last of all came the females wearing the Hehe'e-like masks. They furnished the main comic element, stumbling down the ladder and joking with the spectators. A young man who had been standing near the ladder and gazing up at these "girls" as they descended received a severe tap on the head by one of them with "her" cane by way of chastisement.

As the dancers entered, they passed around to the right or west of the ladder, where a young girl tossed a pinch of corn meal after each one from a plaque she held in her lap. As the stove had been removed, the whole south end of the kiva was available for dancing. The dancers passed around the end of the kiva and along the eastern wall. When the dancers had taken their position, the chief of the kiva stepped up to the leader of the dancers and conversed for a few moments in a low tone. He then received an ear of black corn from him and retired to his seat near the ladder.

At a signal from the leader, the men commenced to shake their rattles, slowly at first, then increasing in speed until a lively cadence was reached and the dance began, accompanied by singing. The men sang naturally, the "women" in falsetto.

All but two of the groups were without drums (each of these two had an extra man, who was always last to enter and to leave the kiva, to carry and beat the drum). The dance consisted of short, light steps, the right foot being raised slightly higher than the left and stamped on the ground with each shake of the rattle.

At the south end of the kiva, a Powamu kachina male and "maid" joined hands and danced slowly toward the ladder. With the same step they danced backward to the south end again and then forward, when a second couple joined hands and followed them. When the first couple reached the ladder again, they held their joined hands aloft and separated, each taking his place at the end of his line. In this manner, the two files of dancers slowly moved toward the south end of the kiva.

Each kiva group danced in this way, and although each had a different song, most of the endings were substantially the same: he he he he ha ha ha.

The Hehe'e-like female masks furnished the comic element throughout. The dances each lasted about fifteen minutes, during which a falsetto muttering could be heard on the roof.

When the dance was over, the dancers filed out around the eastern side of the kiva, in the same order in which they had entered. In a few minutes talking on the roof announced the arrival of the next group of dancers, and they were invited to enter.

The body paint of the Flute kachina⁵³ from Horn kiva was the same as that of the Powamu kachina. The dress differed only in the lack of the red bandoleer and the addition of a rectangular plaque bordered with white zigzags and trimmed with red horsehair, which was worn on the back. In the center of this plaque were two perpendicular stripes, one red and one green, on each side of which were rows of dots. The decorations on two of the plaques differed from the others in that one had simply a rain symbol, while the other had a crescent moon, above which was a five-pointed star. These dancers wore no masks but had tied in their hair many short, cup-like flowers—"buttercups"—and short, fluffy turkey feathers.

The dance step of Flute kachina was the same as that of Powamu kachina except that it was executed in double time. The mass movements of the dancers were the same as those of Powamu kachina except that the couples coming together did not join hands but both faced east and danced sideways to the north end of the kiva, then faced about to the west and danced back, and finally faced east and danced to the ladder again, when they separated and the next couple started out.

The dancing ended at about 6 A.M., and the audience left the kivas.

February 9. 17th day. The men now returned to their kivas after having had breakfast at home. Some, however, had remained in the kivas where they were brought food by the women. This food was "in payment" for the gifts given to the children on the preceding day.

Early in the morning the corn which had been growing in the kivas was cut and prepared for use in the ceremonies on this day. The men who were to impersonate kachinas got ready.

Two men from Chief kiva who were to impersonate Hé'e'e⁵⁴ and Éototo kachinas⁵⁵ now carried their regalia to Kuwáwaimovek⁵⁶, where they dressed. Hé'e'e wore a woman's dress. Only one side of his hair was whorled, for "when they were fixing it up a war started and he got excited so that they could not finish." Éototo was dressed entirely in white.

⁵³ Said to be a Laguna representation.

⁵⁴ Hé'e'e has been impersonated by Le'eteo since he was a boy. Any man from Chief kiva may impersonate Éototo. This year the part was taken by Jean La'pa. Le'eteo is La'pa's uncle, Rabbit clan. Compare Fewkes, pl. 11; *A Pueblo Indian Journal*, fig. 31.

⁵⁵ Éototo is a kachina of the Kokop clan and his mask is kept at the house of the chief of the Kokop clan, Mauhu—"Éototo stays at Mauhu's house." La'pa is the ceremonial father of Mauhu.—J. H. Steward

As such he was no doubt appointed to Mauhu to impersonate Éototo. In 1892 and 1893 Kokop clansmen impersonated Éototo. The guardianship of Éototo entitles the Kokop clan chief or Éototo chief as he may be referred to, to place among the high chiefs. (*Hopi Journal*.) —E. C. Parsons.

Compare Fewkes, pl. 14: *A Pueblo Indian Journal*, fig. 40.

Hé'e'e now started up the trail to the mesa, singing as he went. His song was finished when he neared the top, and he returned to Kuwáwaimuvek'e. Éototo now started up the trail, also singing, and when he approached the top his song was finished and he returned. Hé'e'e now started out again, singing as before, but got all the way to the top of the mesa before he turned back. When he arrived at Kuwáwaimuvek'e, Éototo set forth again and went the same distance.

Lá'pa and Le'eteo were accompanied to Kuwáwaimuvek' by Kála, Kachina chief, and Daláuwine (his brother substitute), Aṇa, and Máuhu (chief of the Kokop clan). While Éototo and Hé'e'e ascended and descended the trail to the mesa, these men remained at Kuwáwaimuvek'e and smoked as prayers for rain.

Thus Éototo and Hé'e'e alternated all day, going a little further each trip. The third time they reached the shrine at the top of the trail. The fourth trip they approached the edge of Walpi. The fifth trip they went to the top of the southernmost kivas in Walpi. On the sixth trip they reached the dance plaza. On the seventh trip they went to Chief kiva.

Meanwhile Kachina impersonators from every kiva had been going through the villages, all day. Among them were: Mountain sheep (who whipped people on the back with a yucca lash); Óhoho⁵⁶ (so-called from his cry); Cháhavio,⁵⁷ Lapúqt⁵⁸ (who "talks back"); Kó'kó (Prairie dog owl, who goes about all day saying "kuku, kuku"); Dachokt^u ("Ball-headed"); Kówiyeimci⁵⁹ ("Mud head"); Telávai⁶⁰ ("Morning"); Ówa⁶¹ (who says "owa, owa"); Má'lo⁶² ("Canes"); Chósbushiyaka⁶³ (with a turquoise nose pendant); Kókopúlu⁶⁴ (who "bends over"); two Wó'ě⁶⁵ (one with a drum, the other with a rattle, who went about dancing); Pū'ukon⁶⁶ (war god kachina), Wúpamu,⁶⁷ Hululu,⁶⁸ Otótna; Flute; Kwásu kale taka,⁶⁹ Bükónya

⁵⁶ Compare A Pueblo Indian Journal, fig. 36

⁵⁷ Compare Fewkes pl. 13; A Pueblo Indian Journal, fig. 27.

⁵⁸ Compare Fewkes, pl. 25

⁵⁹ Compare Fewkes, pls. 16, 45, A Pueblo Indian Journal, fig. 28. Generally identified with Dachokt^u

⁶⁰ Compare Fewkes, pl. 20

⁶¹ Compare Fewkes, pl. 20

⁶² Compare Fewkes, pl. 21

⁶³ Compare Fewkes, pl. 24

⁶⁴ Compare Fewkes, pl. 25.

⁶⁵ Compare Fewkes, pl. 6

⁶⁶ Compare Fewkes, pl. 29

⁶⁷ Compare Fewkes, pl. 31

⁶⁸ Compare Fewkes, pl. 6

⁶⁹ Compare Fewkes, pl. 47.

(who carried and swung a bull roarer). There was one other kachina who carried a gourd, from which he poured water on people's heads. These kachinas are said to be all "brothers." From time to time they returned to their kivas to report Hé'e'e's whereabouts and were said to be "looking for Hé'e'e kachina." Eight Horn society members dressed in white and wearing large ram horns, marched up and down the mesa in single file.

Éototo made but seven trips to the mesa. Hé'e'e on his eighth trip went all the way to the southern end of the mesa beyond Walpi. From here he climbed to the highest point on the whole mesa, Wopákochovi, and then proceeded to Sís-wupakichovi, the house-top from which announcements are made. Here he whirled his quiver, east, south, west, and north, and then all the way around, crying, "Oooooooo." After this he returned to Kuwáwaimuvek'e. All day neither Éototo nor Hé'e'e had eaten. At this time the six men at Kuwáwaimuvek'e were permitted to eat, partaking of salt and meat, which none of them had been allowed for four days.

Hé'e'e made his last trip about five o'clock in the afternoon. Meanwhile Dü'mas kachina and her two sons, Dunwup kachina, had dressed in Chief kiva and at Hé'e'e's seventh trip, had gone below the mesa on the western side to get Gwitok kachina, who had dressed there. Gwitok kachina⁷⁰ is said to live below the mesa on this side. Gwitok kachina wears a blanket of wild-cat skin and a mask with hair hanging down behind. One or two men accompanied him below the mesa to aid him in dressing.

When Hé'e'e mounted to Sís-wupakichovi, all the people had to go inside their houses and stay there, for at this time the corn was carried from the kivas to Kuwáwaimuvek'e. Hé'e'e returned to Kuwáwaimuvek'e and Dü'mas, the Dunwup and Gwitok kachinas commenced to ascend to the mesa from the west. Dü'mas preceded and was followed by her two sons, and finally Gwitok kachina. As Dü'mas walked, she called in a falsetto voice to her sons, telling them to "keep up," and the boys replied that they were coming. On top of the mesa they walked around through Walpi and then descended to Kuwáwaimuvek'e, where the boys and girls who were to participate in the following ceremony had assembled.

During this time the people in the villages had remained indoors, their doors locked and windows covered, not daring to look out. This was to prevent their seeing the corn as it was carried down to Kuwáwaimuvek'e. Those who were dilatory in going inside were whipped and driven in by kachinas. From time to time kachinas pounded and beat the doors and windows, causing laughter among the women but great terror among the young, uninitiated children.

⁷⁰ Gwitok was impersonated by Sána, of Chief kiva and the Kokop clan. Sána is Mauhu's uncle.

The corn sprouts from the kivas had been carried down to Kuwáwaimuvek^o in large bundles by the kiva members. Finally when Dú'mas, the two Dunwup, and Gwitok kachinas arrived, it was made up into large stacks or i'pi. Four sticks, three or four feet long, were laid crosswise and a core of grass tied up with yucca was placed in the center of these. Around the base of this core of grass were laid ears of corn of all colors. The corn sprouts were then tied up into small bundles affixed to the ends of short sticks, üyi (plants), which were thrust into the yucca so as to cover it completely, the green corn standing out from all sides. These stacks of corn were approximately three feet high and of equal diameter. As each kiva had one i'pi, there were in all, nine i'pi. Harry Supela had made nine⁷¹ yi, one of which he put in each i'pi. The i'pi were now placed in a row, north and south. By each i'pi was placed a bundle of four ears of corn, brought by the girls (see below).

The chiefs and kachinas now lined up in the following order: Daláuwine, Harry Supela, Hé'e'e, Éototo, Dú'mas, and two Dunwup and Gwitok kachinas. This procession now walked four times around the row of i'pi, each man touching each i'pi once as he went around.

After this preliminary they were ready to ascend to the mesa. Those just named proceeded in the above order and were followed by the bearers of the i'pi. These were the boys who had been through the Wówöchim ceremony the preceding fall and now impersonated any kachina they desired. They had impersonated their chosen kachina all day on the mesa. If there is more than one Wówöchim novice for any kiva, they all assist in carrying the i'pi. If there are not enough novices, one from a former Wówöchim initiation serves. Each boy was accompanied by a girl⁷¹ who was dressed as the maid of that kachina. This year there were ten boys and nine girls. For practical purposes, the i'pi, which were quite heavy, were carried to the top of the trail by any unmasked men of sufficient strength. At the top of the trail, however, they must be taken over by the Wówöchim novices in kachina dress and their kachina maids.

As the procession advanced, Harry Supela sprinkled corn meal from a sack and the kachinas and kachina maids followed singing and dancing.

When they arrived at the top of the trail, Harry Supela made nine cloud symbols, omauveta, with corn meal, at the top of the trail, on which the i'pi were to be set. These were made for the different kivas in the following order, north to south: Pendete, Kisuñ, Stove, Butterfly, Goat, Horn, Nasava^o, Wikwalvi¹, Chief. The clouds were represented with the rain falling toward the north. The boys and girls were lined up in the same

⁷¹ These girls must be Hopi. They may be of any age. They are invited to take these parts by Daláuwine, Supela, or any of the Hopi chiefs.

order carrying the *i'pi*, the boy on the left, the girl on the right. The tied corn ears were carried by the extra boy, or if there was but one to each *i'pi*, it was carried for him by a *kachina*. These passed along the line of cloud signs, the boys on the left of them, the girls on the right, holding the *i'pi* directly over them, until the Chief *kiva* novices came to the last cloud sign. All were now in place and set the *i'pi* on the cloud signs with the tied corn ears on their north sides. *Dü'mas*, *Dunwup*, and *Gwitok* *kachinas* now went around four times (see fig. 1), led by Harry Supela. As the *kachinas* passed the *i'pi*, the boys stepped between the *i'pi* and grasped the top of their own, and Harry Supela sprinkled corn meal on each *i'pi* while the *kachinas* touched each one. This was done four times. Meanwhile other *kachinas* who had been active during the day were on hand to guard the *i'pi* lest they blow over or some evil befall them.

The *i'pi* were now taken up again and the procession moved on to a point near *Walpi* where this performance was repeated. Cloud signs were made, the *i'pi* set down, and four circuits made by Harry Supela and the *kachinas*. They then moved on again to the first houses in *Walpi*, where the same ritual was gone through.

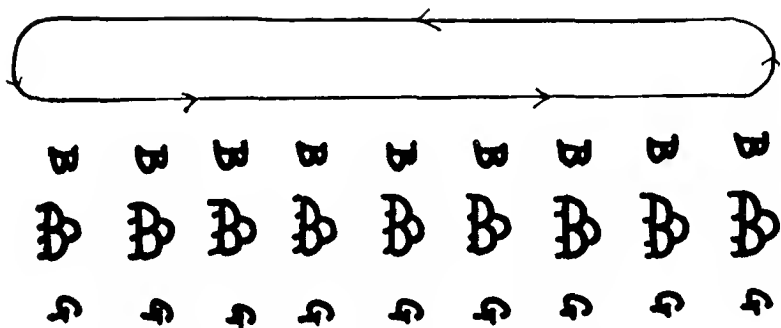


FIG. 1. Cloud signs and circuit by *kachinas*. Arrow = circuit followed by *kachinas* in walking four times around to touch the *i'pi*; B = boy, G = girl.

This was repeated the fourth time in the same manner at *Kisonbi*, the dance plaza in the center of *Walpi*.

When the *kachinas* and *Wöwochim* novices started up the trail with the corn, the people who had been confined to their houses were now permitted to come out and witness the ceremony. When the *i'pi* were set down the fourth time on the cloud signs, Harry Supela requested them to "cover up" the children who had not been initiated to the *kachinas*, so that they should not see the remainder of the performance.

After the ritual had been gone through for the fourth time, some masked

man picked up the i'pi belonging to his kiva and held it on his right shoulder. Some other man from that kiva, not in mask, now ran up and took it from him, carrying it as quickly as possible toward the kiva. He ran as rapidly as possible with the heavy load, while men followed to pick up any pieces that might have dropped. Others from his kiva ran with him, relieving one another. The tied corn ears were carried by one of the men. The kivas must carefully guard their i'pi and tied corn ears, for if any part were dropped it might be appropriated by another kiva. Thus Chief kiva lost its tied corn ears, which fell into the hands of Kisun kiva. This was supposed to have brought the latter good luck in their crops, the former poor luck.

After the i'pi and tied corn ears were removed and taken to the kivas, the boys and girls remained standing by the cloud signs. Harry Supela then led the kachinas and the boys and girls around the cloud signs four times, sprinkling meal on the clouds each time. After this all returned to Kuwáwaimuvek^e and removed their regalia. The girls went to their homes, the boys to their kivas.

At their kivas the men dismantled the i'pi, giving üyi to each man. The ears of corn were taken to the girls who had impersonated the kachina maids. These ears were to be used by the girls for planting the following season. The men took the corn sprouts to their fields, where they were buried for good luck.

UNIVERSITY OF MICHIGAN,
ANN ARBOR, MICHIGAN

MINUTE BEADS FROM PREHISTORIC PUEBLOS¹

By EMIL W. HAURY

EXCAVATIONS within the confines of the area formerly occupied by the prehistoric Pueblo Indians have yielded a marvelous variety of beads which were utilized in the embellishment of the human body. Broadly speaking, two types of beads were manufactured. The first group comprises small univalve and bivalve marine shells, which were readily adapted for stringing by merely grinding off the spire of the shell or by making a rough perforation through the shell wall. Beads of the second type normally take the shape of small discs having centrally located perforations. These were carefully worked from naturally occurring substances such as stone, bone, or shell; less frequently they were molded from prepared clay. Among the beads of the second type is a class that has long attracted much attention because of the minute forms and the perfection with which individual specimens were wrought. Although the whole ancient Pueblo art of bead-making is worthy of a close study, it is this latter class of unusually small beads with which we are here primarily concerned.

The interest aroused by these beads is justified, since they excel the beads made by any other primitive tribes of North America. Compared with a heterogeneous collection of beads made by Plains and Coastal Indians, they readily show superior and refined workmanship. Even a comparison of ancient Pueblo beads with those from modern pueblos proves the inferiority of the latter, indicating deterioration. Hence, as objects of their kind, designed solely for ornamental purposes, they undoubtedly have never been equaled in North America.

The diminutive beads in the Arizona State Museum collection, either in necklace form or loose, have been gathered from a large number of ancient pueblo sites ranging from the San Juan drainage in the north to within a few miles of the international boundary on the south. The distribution was evidently general throughout the major part of the area, and the manufacture of small beads was not wholly confined to a small community. However, the countless numbers found in the Salt and Gila River valleys, notably at Casa Grande, apparently distinguish that region as a center of the art, where it played a prominent part among existing industries.

¹ In preparing this paper the extensive bead collections in the Arizona State Museum at the University of Arizona and in the Casa Grande National Monument Museum were placed at the disposal of the writer by Director Byron Cummings and by Mr. Frank Pinkley, Superintendent of Southwestern National Monuments, respectively. To Professor R. J. Leonard of the Department of Geology of the University of Arizona we are deeply indebted for collaboration on the study of materials used by the ancients in the manufacture of beads.

One of the most productive bead areas which has yet come to notice is situated just east of Compound *B* of the Casa Grande group of ruins. This spot is believed to be an ancient cremation ground because of the prevalence of calcined human bones in the soil and the presence of occasional funerary urns. Beads and other ornaments also bearing marks of subjection to fire are abundant. These, without question, were worn by the dead at the time of cremation. This area has undoubtedly yielded the smallest individual beads yet discovered (see p. 83).

The accidental burning of rock, as in cremation, usually alters the condition of the material, a circumstance which complicates analysis. Turquoise, for example, loses its blue color and turns to a grayish black upon heating, while a naturally dark carbonaceous rock may turn lighter. Shell, on the other hand, normally turns gray or black.

According to some, most of the beads in the cremation ground at Casa Grande were of turquoise. The common use of this stone for beads in other Southwestern ruins has been well demonstrated.² Tests made on several hundred specimens gathered at random in this area have yielded only a few beads made of turquoise. By these tests less than 5% of the beads were presumably made of the much desired turquoise, whereas a large proportion roughly set at about 60%, were made of other varieties of a natural stone. Beads of shell and clay share approximately equal proportions in the remaining 35%. These estimates, based upon specimens 2 mm. in diameter or less, are reasonably trustworthy in pointing out that beads from natural rock were far more prevalent than those of either shell or clay. In collections of beads larger than 2 mm. in diameter, an increased percentage of shell is usually found.

To be sure, a single bead was but a small part of an ornamental production, ordinarily in the shape of a necklace. When considered singly, surprisingly minute specimens might be isolated from beads with larger average diameters and becoming, therefore, mere oddities; but such is not the case since the examples described below are composed of countless numbers of tiny discs having exceedingly small calibers and correspondingly smaller perforations.

The finest of all small bead necklaces which have yet come to light is pictured in plate 8a (Arizona State Museum, cat. no. 1645). The beads were found unstrung in the sand filling of a burial olla coming from a ruin in Kaycuddy wash, near Kayenta, Arizona. The majority are dark gray to black and are fashioned from a natural stone. A relatively small number of red beads were also enclosed in the olla, intermingled with the black ones.

² F. W. Hodge, 1921; G. H. Pepper, 1920, N. M. Judd, Sept. 1925.

Whether both types were originally component parts of a single necklace could not be determined, but in their present state they are strung in such a way that the red beads are interspersed among the black at approximate intervals of one inch. When extended in a single string to its maximum length, the necklace is 32 feet long; or, as shown in plate 8*a*, there are 16 strands, each of which is two feet in length. With an average of 40 beads to the inch, the bewildering total of over 15,000 tiny individual discs make up this one article of adornment. Speculating as to the time required for the manufacture of such a quantity of beads, we get even more startling figures. Allowing fifteen minutes per bead for the process of manufacture, which includes the collection and preparation of tractable material, the making of drills, the drilling process, and the final polishing (a bare minimum for the time required), it took a single individual approximately 480 eight-hour days to manufacture these 15,000 or more beads. Such production certainly proves that the Indian was not averse to novelty, and in this case, to a rare individualistic expression in bead-making.

Analysis of the material of the black beads indicates that they were manufactured from a natural dark-colored slate or argillitic rock, not from prepared clay as one might suspect. The exterior surfaces of the beads are highly polished and are considerably darkened from the absorption of body oils derived from the wearer's skin. The red beads are of a natural fine-grained rock of unidentified variety. Although there is some variation in the diameters of the black specimens, the mean is 2 mm., just slightly larger than the average pin head. The red beads average 2.14 mm. in diameter.

Not long ago a string of beads strikingly analogous to the necklace just described was unearthed with an infant burial at Casa Grande by Mr. Frank Pinkley. The necklace, now in the Casa Grande Museum, is over seven feet long and is made up of black and red beads identical with those of the above-mentioned product. The tiny discs average 45 to the inch, with from eight to ten red ones interspersed in every inch of the black beads. The stylistic similarity of the two necklaces might lead one to consider them products of the same hand.

One of the best illustrations of uniform calibrations and equal diameters in small beads was unearthed in a cliff pueblo in Nitsie cañon, in northern Arizona. Although the necklace is fragmentary and incomplete, there are approximately 42 inches of beads still on the original cotton thread. The beads exhibit equal diameters of 2.14 mm. with but few variations and are strung so as to average 60 to the inch. An inch section, enlarged nearly five and one-half times (pl. 8*b*, Arizona State Museum, cat. no. 457), illus-



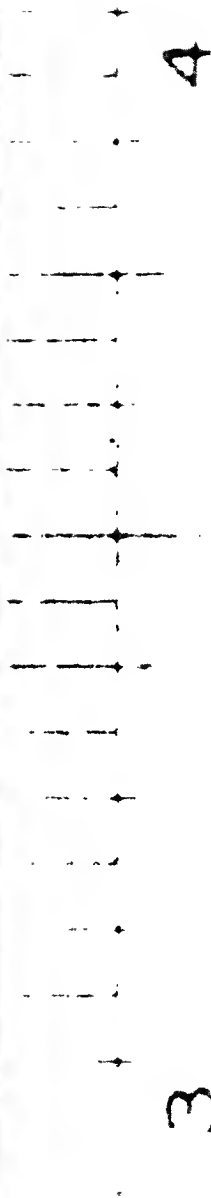
a

A prehistoric necklace, 32 feet long when fully extended, and composed of over 15,000 stone beads.



b

A string of ancient stone beads averaging 60 to the inch. Enlarged about $5\frac{1}{2}$ times.



3

4



Photomicrographs of tiny beads. *a*, shell (calcined); *b*, stone, enlarged about 25 diameters; *c*, clay; *d*, stone, enlarged about 30 diameters.

trates the above points. Unless examined at close range, the fragmentary necklace might be mistaken for a red cord, since the flat faces of the beads are so closely fitted together that the interstices are barely perceptible. The material from which these beads were fashioned is a fine-grained crystalline rock of pelitic character. Upon heating, the color is considerably lightened, due to the volatilization of body oils.

This brief statement defines the type of beads under consideration and the skill attained by the ancient Pueblo Indians in the quantity production of such minute and delicate objects.

A purely dimensional study from different sections of the area reveals that the smallest individual specimens were made at Casa Grande. The surprising feature here is that they were as symmetrically and perfectly formed as beads of larger diameters which could be worked with greater ease. The smallest bead in the collections at hand measures but 1.30 mm. across the flat face of the disc. Others ranging from 1.75 mm. to 2 mm. are not uncommon. The thickness, or distance between the two flat faces, usually does not exceed 1 mm., and a minimum thickness of .25 mm. has been measured. This figure can be more fully appreciated with the understanding that a hundred like beads could be strung on a thread but one inch in length! More surprising than this, however, are the tiny, uniform, and centrally located perforations. Diametrical measurements of the latter vary from .51 mm. to 1 mm. A perforation of the smallest size just given will barely allow the free passage of the finest commercial sewing needle, a no. 10. Hence it usually becomes necessary, when dealing with such tiny objects, to use a bead needle in order to avoid a great breakage of specimens,

From a study of several hundred specimens—many of them examined in cross-section through a binocular microscope of 25x and also submitted to chemical and petrological tests—it appeared that the beads were made either of artificially prepared or natural amorphous materials. Beads of artificial substances were produced from a very fine textured fictile clay and consolidated by a firing process. The beads of the second variety of materials were fashioned directly from naturally occurring stone and shell.

Slate, one of the common natural materials used, and prepared clay consolidated in an Indian's fire, at first seemed to bear the same characteristics. Closer scrutiny, however, showed that the substance in the molded specimens displayed in cross-section a marked porosity and a so-called plastic flow structure, which can be identified by faint lines in the clay resulting from the molding process and emphasized by the unevenness of the coloring matter. In many cases the natural color of the clay was obviously enriched by an admixture of iron oxides. As a rule, the artificially fired clays have

undergone little or no recrystallization, while the reverse condition usually exists in the natural substances.

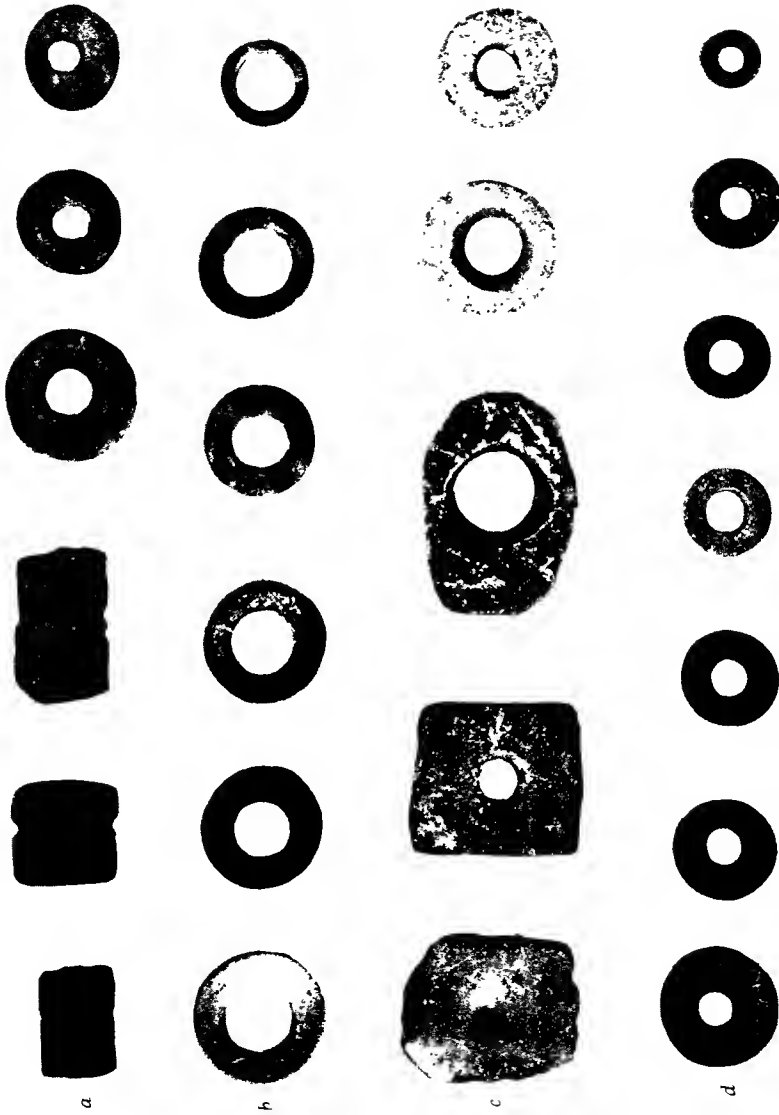
The native rocks display neither the porous texture nor the plastic flow structure of clay. The coloring matter, whether ferruginous or carbonaceous, is evenly distributed, although in some cases accentuated by the absorption of body oils. The varying hues of red and black beads were derived from compact argillaceous or pelitic rocks, in which crystallization is manifest. Other natural substances are apparently lacking in the smaller beads under discussion.

Shell beads, as a rule, are readily distinguished by their reaction to hydrochloric acid, and by their laminar structure. The latter trait is well illustrated in plate 9*a*, which shows a shell bead from Case Grande enlarged approximately 25 diameters. A third distinguishing trait which may be ordinarily seen in shell beads is their concavo-convex shape or saucer-like form (also see pl. 10*a*).

For the technological aspects of bead-making it was necessary to study the outward appearance of many specimens in order to detect some mark valuable for the determination of the methods and the nature of the instruments employed in manufacture. It must be stated that many details are still to be filled in.

Clay beads were evidently made by at least two methods, which may be briefly characterized as follows: (a) by a process of molding each bead individually around a vegetable fiber, (b) by a process of encasing a grass stem or another suitable fiber with a thin layer of wet clay, thus forming a tube, which was sectioned at more or less regular intervals by shallow incisions. After drying, the tube was subjected to fire. This consolidated the clay and burnt out the vegetable core, preparing it to be broken into sections at the incisions. The rough edges resulting from the severing of the segments were worked down as the final treatment, although in many cases they were never retouched.

The second method is illustrated by many good specimens, which represent all stages of manufacture after the firing process. Some of these are shown in plate 10*a*. Especial note is to be taken of the several fragments of clay tubes, which were not broken at the intended places. The uneven scorings of the cylinders are well indicated. A good conception of the breakage face and the depth of the incision can be gained from the photomicrograph plate 9*c*, a case where the bead was not retouched after detachment from the tube. This specimen also illustrates two other dominant characteristics of clay beads, namely, the sub-circular shape and the off-center aperture.



Beads. *a*, clay; *b*, shell; *c*, *d*, stone. Of the shell beads, all but the first one on the left have been calcined. In *c* the first three specimens show the several stages of manufacture of stone beads.

The technique of manufacturing beads of natural substances was by far more difficult to unravel than the methods of making clay beads. One of the first questions that arises in connection with stone and shell beads concerns the method of drilling the incredibly small apertures. A comparison between the shell and stone specimens in plate 10*b* and *d*, shows that as a rule the larger perforations are found in the beads of shell. Undoubtedly the nature of the shelly substance permitted the perforations to be made with larger drill points without breakage, whereas rock would be more liable to split. Hence a smaller drill was used. In cross-section the perforations of the stone beads reveal several types of drills. The most common perforation is one which is uniform in diameter throughout the thickness of the

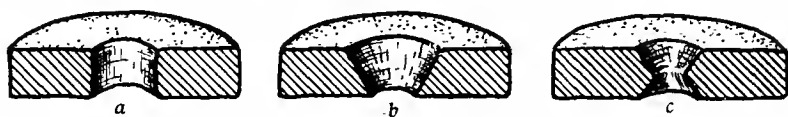


FIG. 1. Types of perforations in minute stone beads.

disc, as illustrated in plate 9*b* and figure 1*a*. A hole of this nature was apparently made by means of a long slender instrument on which the bead was rotated after the boring in order to obtain the uniform diameter. A sharp, abruptly tapering instrument was also used, as indicated in plate 9*d*, and figure 1*b*, in which a conical drilling was produced. In some cases the perforations are biconical, i.e., drilled from both sides of the disc with a tapering instrument (fig. 1*c*).

Unfortunately archaeological research has not yet revealed the remains of instruments which can be definitely connected with the manufacturing processes of small beads. It is unreasonable to suppose that a flake of flint was chipped to a point sufficiently small for drilling a hole .75 mm. in diameter and so uniformly cut that even under magnification the irregularities are seldom distinguished. It is known that small reeds and tough grass stems were used with grinding media as drilling devices by primitive peoples, but here again it is doubtful if such a method could produce the exceedingly small apertures under question. A very sharp splinter of bone may have served the purpose, but it can be well imagined that nearly as much time would be required in making a supply of bone drills as would be in the bead-making process itself.

The instruments required must have been sharp, tough, and slender, readily obtainable and plentiful. Precisely such a tool was furnished by nature in the spines of several species of Southwestern cacti. The two species producing the most likely spines which could be adapted for drills

are *Carnegiea gigantea* (sahuaro), and *Echinocactus wislizeni* Engelman (visnaga or barrel cactus). The needles of the former species are usable only from the young specimens, since those from the more mature plants tend to become woody and are consequently of no value. The spines of the *Echinocactus wislizeni* Engelman are arranged in clusters along the vertical ribs of the plant. The central and longest needle of the cluster is normally "fish-hook" in shape, and of the half dozen or more straight and stout lateral spines, the largest ones are best suited for drill points. These range from one to two inches in length, are very sharp and slender, and are composed of an extremely tough material.

The experiment described in the following paragraphs was merely an attempt to prove the serviceability of cactus needles as drills. Since as yet no archaeological data corroborate such use, the experiment has merely suggestive value.

The stony substance here used was a thin plate of fine-grained pelitic rock, light red in color. It was picked up on an ancient ruin site and bore marks of having been worked into its plate-like shape. The texture and the color of the material greatly resembled that of some of the Leads in the Museum collection, hence the rock was probably prepared originally for the same purpose to which it was put in this test.

As for the steps in the preparation of the material leading up to the drilling process, the procedure was undoubtedly much like that described by Hough,² who speaks of selected stones made into flat plates and rounded off by holding the small bits between the fingers and rubbing them over an abrasive surface. This was followed by the drilling of the aperture and by stringing together a number of discs, drawing them over sandstone or through a groove between two fine-textured stones to round them off, and finally polishing by rubbing them over leather.

With a few modifications this procedure was followed in the experiment. A fragment of the rock already described was reduced to a plate 1.47 mm. in thickness by rubbing it over an abrasive surface. A sharp piece of flint served in cutting this plate into segments approximately 4 mm. square, which were detached from the plate by breaking. In the center of one of the blanks, an aperture was started with a flint point in order to provide a footing for the drill. The drill itself was made by setting a spine of *Echinocactus wislizeni* Engelman into a notch in the end of a small stick and was held in place with a binding of cord. The drill was set into motion by rotation between the palms of the hands and was aided in the grinding process by recurrent additions of fine sand and water. Approximately fifteen minutes were required to pierce the fragment of stone. It was then rolled about

² Walter Hough, USNM-B. 87 26, 1924

on the needle until the diameter of the perforation was uniform throughout its length. The pierced blank was next worked roughly into a round form by holding it between the fingers and passing it over an abrasive surface. In the absence of a larger number of beads in the rough with which it might be strung and re-worked the blank was revolved obliquely over sandstone, the drill serving as an axis. For the finishing touches the faces of the disc were reground, which eliminated all traces of the pit made with the flint point and at the same time considerably diminished the thickness of the bead.

The finished product measured 3.39 mm. in diameter, 1.13 mm. in thickness, and had a perforation .94 mm. in diameter. When subjected to examination with a number of genuine beads it could not be detected.

Original examples of partly and completely drilled stone blanks, and an unfinished steatite bead may be seen in plate 10*c*. Plate 10*d* includes a representative selection of small-type stone beads.

Obviously the smallest beads of which measurements have been recorded here could not have been held between the fingers and in that way drilled and worked to their symmetrical shape. It is likely that the blanks which were marked off on the thin plates of stone were drilled, then detached, and strung for the final finishing process.

Since the majority of small beads are made of a natural fine-textured workable rock, it would appear that their distribution was greatly dependent upon the occurrence of such materials. Quite evidently the desired materials were imported into regions where suitable elements did not exist, but unfortunately no traces have yet been discovered of aboriginal quarries which might point towards the original center from which the art of making beads disseminated.

In conclusion it may be said that the ancient Pueblo bead-maker's art is unique in several respects. It bears no analogous development in the archaeological areas to the north, east, south, or west. It was carried to a perfection difficult to grasp when we consider the primitive tools employed in the various stages of manufacture. It has experienced a general deterioration from prehistoric to modern times, since the work of the Pueblo Indians of today does not approach the work of their forebears. Finally, it is evident that the art of making beads underwent an independent and uncommon development, to which these and many other products bear ample testimony.

GILA PUEBLO,
GLOBE, ARIZONA

TYPES OF "TRONATTAS"
OR STONE IMPLEMENTS USED BY
THE ABORIGINES OF TASMANIA¹

By WILFRID D. HAMBLY

ETHNOLOGISTS have not ceased to lament the passing of the Stone Age Tasmanians without adequate study. Practically nothing is known of the social factors, which seem to have escaped observation. This is not surprising when one takes into consideration the difficulties of ethnological inquiry in relation to religious beliefs, magic, social organization, and law. The classical summary of Ling-Roth² makes clear the paucity of evidence respecting what is sometimes called the non-material aspect of culture. The origin of the Tasmanians themselves remains a matter of conjecture, though a consensus of opinion allies them with Melanesians and Negritos of the Andamanese type. Since the time of Ling-Roth's summary of the osteological evidence, papers relating to the physical appearance and physical anthropology of the Tasmanians have been published by Berry,³ Basedow,⁴ Malcolm,⁵ and Duckworth.⁶ Possible methods of arrival of the Tasmanians in their island home have been discussed by Kenyon and others, whose joint paper (Rept. Aust. Assoc. for Advancement of Science, 17: 467-9, 1924) suggests that the aborigines had been settled in Tasmania about 7000 years when European intruders arrived. A large body of facts and theories have been sifted by J. W. Gregory,⁷ who comes to the conclusion that the Tasmanians travelled down the eastern side of Australia which abutted far into the Tasman sea in recent geological times. Gregory's summary is profitably read in conjunction with an article by N. W. Thomas on the navigation and canoes of the Australians and Tasmanians.

In dealing with the material culture of the Tasmanians, the investigator may be certain that they used wood, stone, and skins. Some doubt exists

¹ A description of the collection in Field Museum of Natural History, Chicago.

² H. Ling-Roth, *Aborigines of Tasmania*, 1899.

³ R. J. A. Berry, *The Craniology of the Tasmanian Aboriginal*, JRAI, 44: 122, 1914.

⁴ H. Basedow, *Relic of the Lost Tasmanian Race*. Obituary Notice of Mary Seymour, Man, no. 81, 1914.

⁵ L. W. G. Malcolm, *Short Notes on the Inhabitants of Cape Barren Island, Bass Strait, Tasmania*, Man, no. 71, 1920.

⁶ W. L. H. Duckworth, *Craniological Notes on the Aborigines of Tasmania*, JRAI, 32: 177-180, 1902.

⁷ See "Australasia," in *Stanford's Compendium of Geography and Travel*, ch. 8 (London), 1907.

with regard to the employment of bone. Noetling⁸ states that after a careful study of camping grounds there is justification for rejecting the view that the Tasmanian aborigines manufactured implements from bone. He doubts the authenticity of a bone scoop in the Hobart Museum and says that he never found a single piece of bone that could, even with the greatest stretch of imagination, be considered an implement. The artifacts of the Tasmanians were reduced to a minimum, and the response to favorable environmental conditions was surprisingly meager. Such cultural lag is perhaps to be ascribed to an absence of contacts. There was no infusion of ideas from outside either through warfare or peaceful infiltration.

So far as is known, the stone implements were used for skinning, scraping, gouging grooves on the grips of clubs, cutting notches in trees to aid climbing by insertion of the toes, and trimming the points of plain wooden spears. Plates 11-16 show Field Museum collections from Tasmania and Victoria; these serve further to illustrate the types of primitive stone implements used in those regions. See also table 1.⁹ The types should be studied in conjunction with those given by Sir E. B. Tylor,¹ 1898-9, also by Noetling.¹⁰ Such terms as "hand-axe," "side scraper," "double sided scraper," "ovate," "round-nosed," and "thumb-stone" scraper, likewise the terms "gouge" and "flaked-knife" are convenient distinctions. They are permissible as long as such names are not meant to denote a rigid demarcation which does not exist.

Plate 11*a-c* shows the roughly chipped stones called "handaxes." There is a record of Rollings having seen such a stone hafted by a Tasmanian in 1840, but this hafting and binding with sinew was a rare method due to the influence of aborigines introduced from New South Wales in the early days of Tasmanian settlement by Europeans. *d* is a quartzite implement having a useful projection or "duck-bill" in the top righthand corner. *e* and *f* are "thumb-stone" scrapers, and *g* is a flaked knife. Plate 12 shows the flat reverse sides of these implements. There may be an objection to

⁸ F. Noetling, Study of the So-called "Bone Implements" of the Aborigines of Tasmania, Paps. and Proc. Royal Soc., Tasmania, p. 102, 1911-12.

⁹ Photographs reproduced in this paper by courtesy of Field Museum of Natural History. Identification of rocks made by Mr. Sharat K. Roy, Assistant Curator, Department of Geology, Field Museum of Natural History.

¹ E. B. Tylor, On the Occurrence of Ground Stone Implements of Australian Type in Tasmania, J[R]AI, 24: 335, 1894; *ibid.*, On the Survival of Palaeolithic Conditions in Tasmania and Australia, J[R]AI, n s., 1: 199, 1898-9, *ibid.*, General Account of Lives of Aborigines of Tasmania, J[R]AI, 23: 52, 141-152, 1893.

¹⁰ F. Noetling, Red Ochre and Its Use by the Aborigines of Tasmania, Paps. and Proc. Roy. Soc., Tasmania, p. 30, 1909.

the use of a terminology borrowed from European archaeology, but the word "Mousterian" is conveniently descriptive.

Plate 13*a, b* pictures two side-scrapers, the former of quartzite, the latter of chert. *c* and *d* are round-nosed scrapers, the former of conglomerate, the latter of cherty sandstone. *e-h* are "stone knives" from Victoria, Australia. There is a general resemblance between the Tasmanian and Victorian methods of chipping, but the relative coarseness of the Tasmanian forms is not so apparent in examples described by G. Horn.¹¹ Plate 14 shows the reverse sides of these scrapers.

In plate 15, *a* and *b* are gouges. *c* is a double-sided scraper of hard sandstone, and *d* is a similar implement of quartzite. Both *c* and *d* are of a typical plano-convex form. Implement *e*, of gray quartzite, and *f*, of very compact sandstone, are rightly described as ovate scrapers, as also are *g* and *h*. Plate 16 shows the unworked reverse sides of these scrapers.

In addition to these stone implements several stone artifacts are said to have been used by the Tasmanians. Noetling¹² has photographed chipped stones, which he claims to be an intentional reproduction of the forms of the wombat, the snake, a human face, and a bird's head. These should be compared with palaeolithic figures of flint from old alluvia of France and England, described by W. M. Newton.¹³ R. W. Legge¹⁴ has pictured "pounders" or "hammer stones," found along the east coast of Tasmania, on the shores of the estuary of the Derwent, and in wind-blown sand pits of the midland regions of the island. From the north shore of the west coast Legge gathered pounders of elongated shape which were in kitchen middens. He suggests that these were used for opening shells of the green whelk. Early explorers of the Tasmanian coast were at times greeted by showers of stone missiles of a kind found recently in a cache. H. S. Dove¹⁵ reports that there are in northwest Tasmania two distinct types of hammer or pounding stones. These are regarded by Noetling as "sacred" or "magical" emblems. Dove describes one such stone which had been used for pounding red ochre, but Noetling states that red ochre was removed from the matrix by scraping and not by pounding.

As one handles these roughly chipped implements the imagination goes

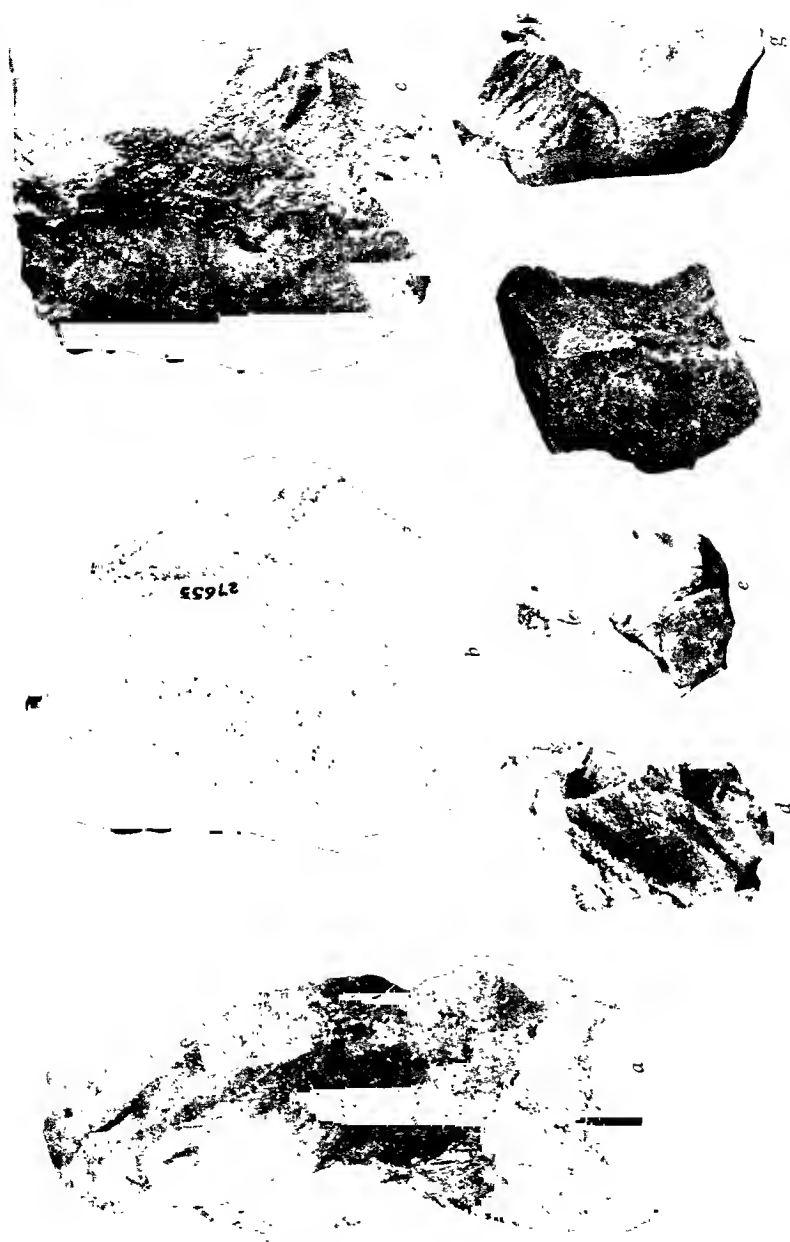
¹¹ Cf. stone implements of the Tasmanian aborigines and those of Victoria (see pls. 26 and 27, Paps. and Proc. Royal Soc. Tasmania, p. 183, 1921).

¹² See in 8.

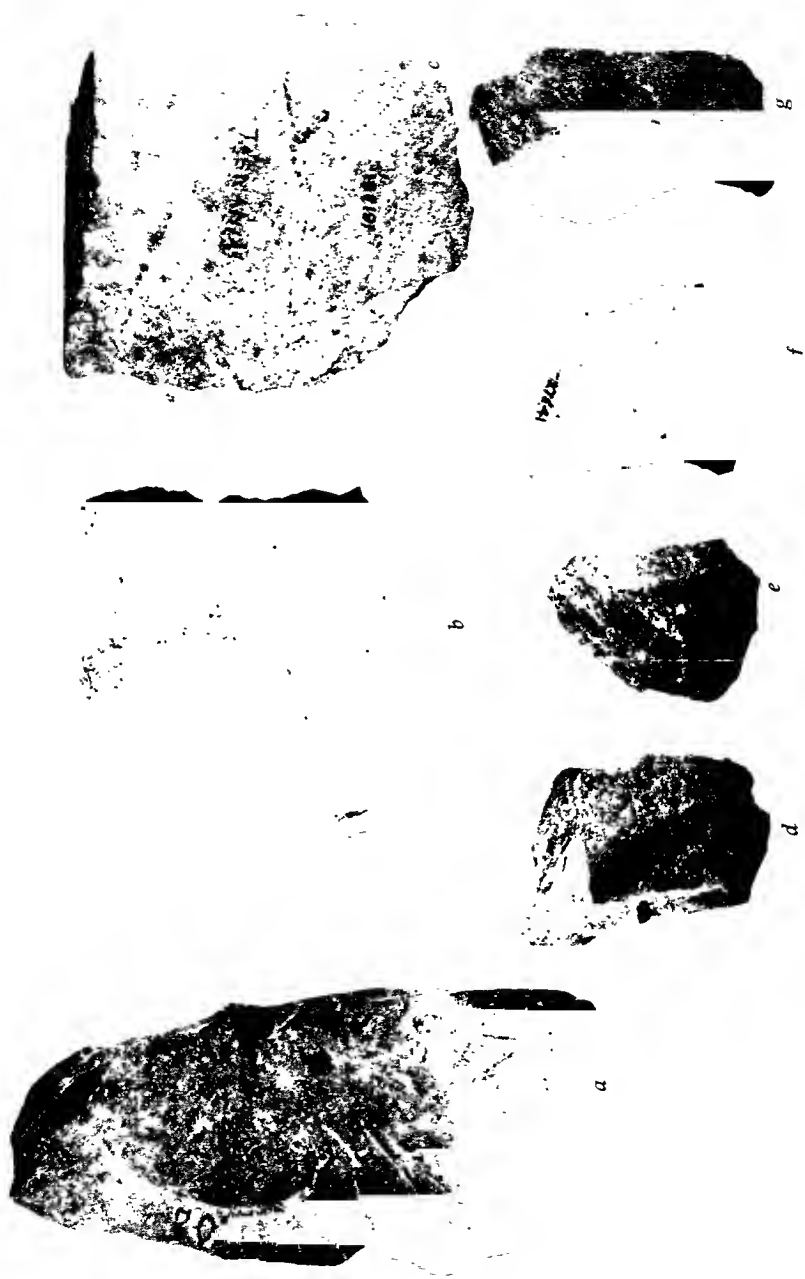
¹³ W. M. Newton, On Palaeolithic Figures of Flint, Journ. Brit. Arch. Assoc. March, 1913.

¹⁴ R. W. Legge, Pounders or Hammer Stones of the Aborigines of Tasmania, Paps. and Proc. Roy. Soc. Tasmania, p. 25, 1927.

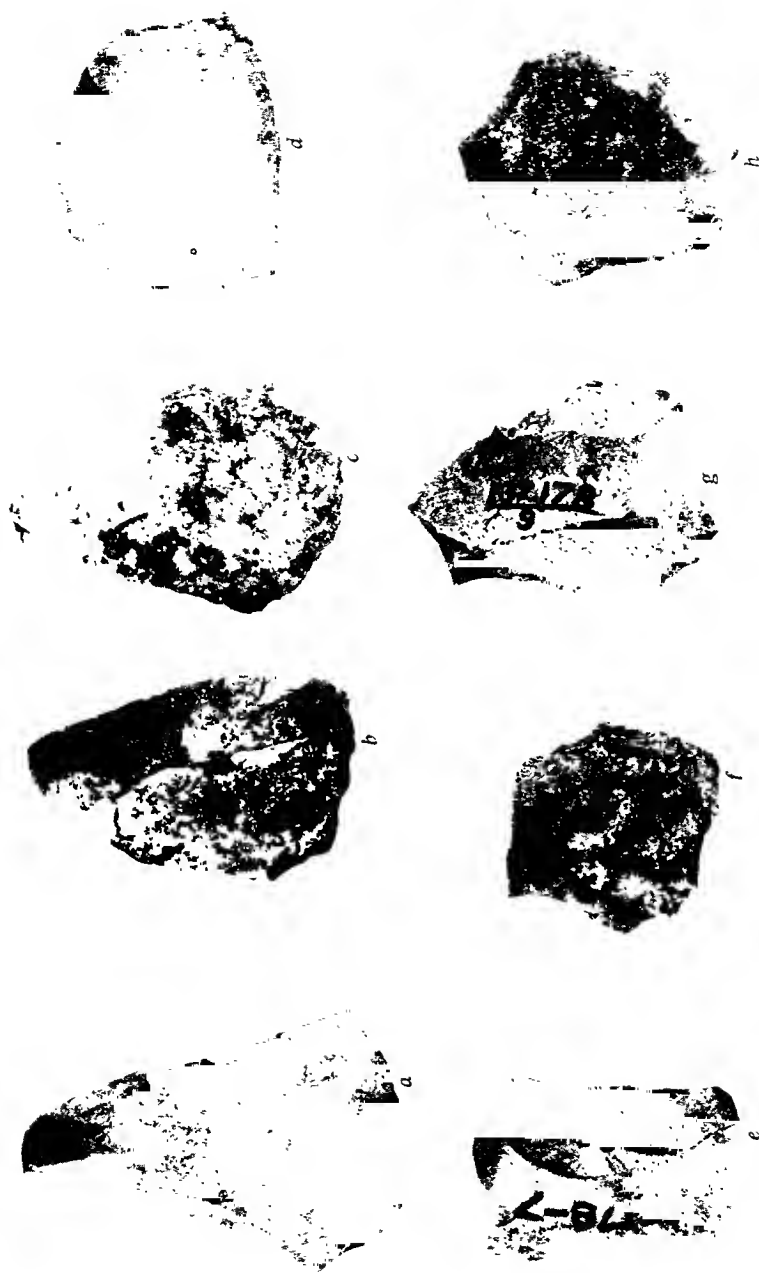
¹⁵ H. S. Dove, Pounding Stones and the Use of Red Ochre by the Aborigines of Tasmania, Paps. and Proc. Roy. Soc. Tasmania, p. 262, 1910.



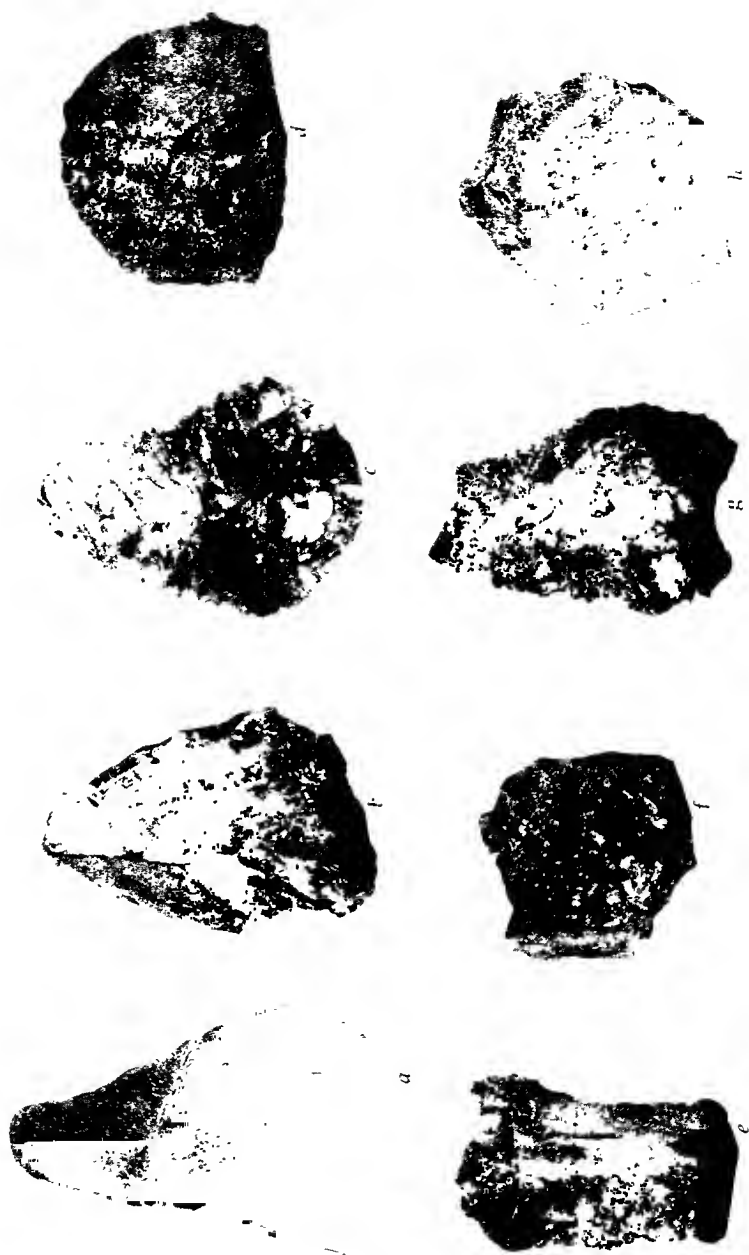
a, c, roughly chipped stones called "hand axes"; *d*, a quartzite implement with a projection at the base; *b, e, f, g*, "thumb stones" or rapers.



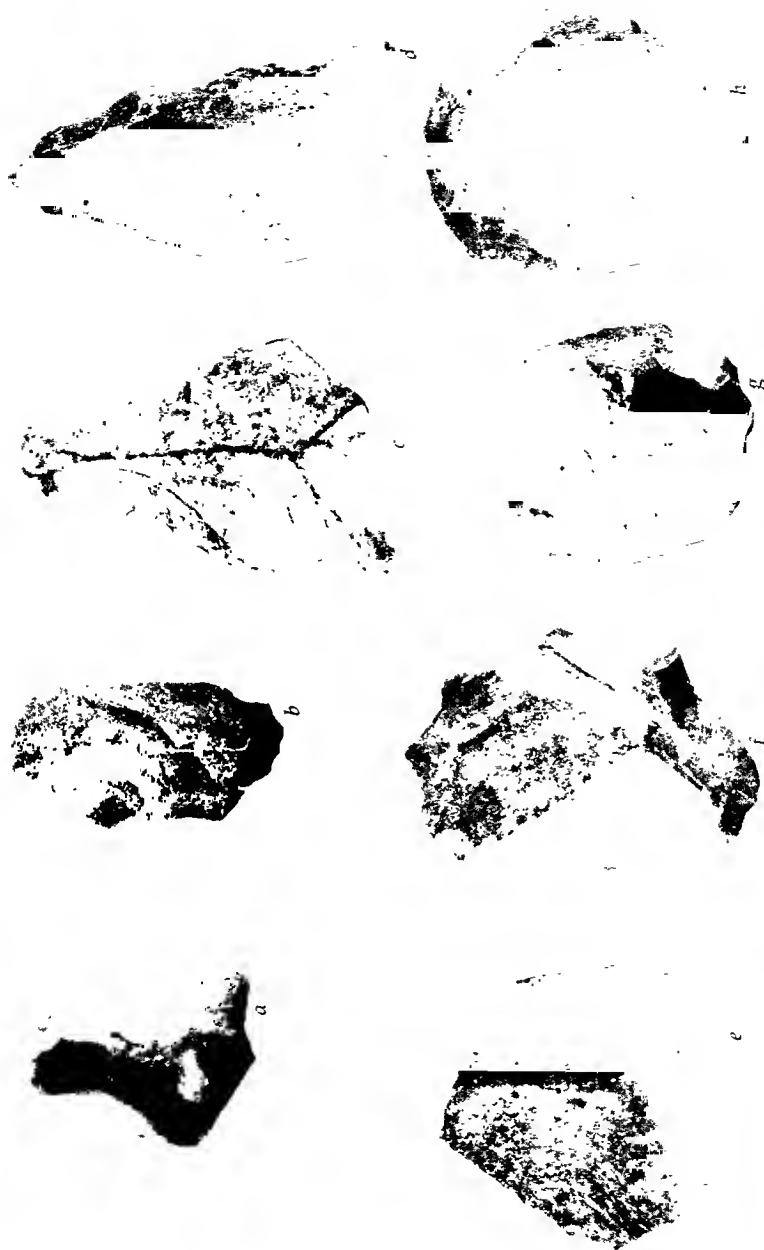
The flat reverse sides of implements in plate 11.



a, b, quartzite and chert side-scrapers, respectively, *c*, conglomerate round nosed scraper,
d, cherty sandstone round-nosed scraper, *e-h*, "stone knives" from Victoria, Australia



The reverse sides of scrapers shown in plate 13



a, b, gouges; *c*, double-sided scraper of hard sandstone; *d*, similar implement of quartzite; *e, f, g*, gray quartzite ovate scrapers; *f*, compact sandstone ovate scraper.



The reverse sides of the scrapers shown in plate 15.

TABLE 1. STONE IMPLEMENTS FROM TASMANIA AND VICTORIA

<i>Specimen as illus. on plates</i> ¹⁶	<i>Locality where found</i>	<i>L×B (max. cm.)</i>
11a	Lemana	13×5
11b	Old Beach	10×8
11c	Tasmania (locality ?)	10×8
11d	Old Beach	6×3.5
11e	Kelso	4.5×3.5
11f	Lenah valley	5.5×4.5
11g	Mount Leslie	6.5×3.5
13a	Old Beach	6.5×4.5
13b	Beam's Ford	6×4
13c	Port Sorell	6×4.5
13d	Barnard's creek	4.5×4
13e	Victoria, Australia	5×3
13f	St Kilda, Victoria, Australia	3.5×3
13g	Victoria, Australia	5×4
13h	Southwest Victoria, Australia	4×4
15a	Smithton	4.5×3.5
15b	Risdon	5×3
15c	Barnard's creek	7×4.5
15d	East Tamar	8×4.5
15e	Glenorchy	5.5×5
15f	Risdon	6.5×4.5
15g	Tasmania (locality ?)	5.5×5
15h	Tasmania (locality ?)	6×5.5

back to such incidents as that described by Raynor in the year 1818. While noisily chattering, the blacks were breaking stones into fragments either by dashing them on the rocks or by striking them with other stones. They then picked up the sharp-edged pieces for use. One old fellow, with energy surprising for his years, dashed one stone upon another, meanwhile leaping high into the air to avoid the flying splinters.

FIELD MUSEUM OF NATURAL HISTORY,
CHICAGO, ILLINOIS

¹⁶ Plates 12, 14, 16 show the reverse sides of the implements pictured on plates 11, 13, 15.

JESSE WALTER FEWKES was born in Newton, Massachusetts, November 14, 1850, son of Jesse and Susan Emeline (Jewett) Fewkes. His early education was in the schools of the period. At the age of 21 he was fitted for college and entered Harvard without conditions. Graduating with honor in natural history in 1875, he was elected to the Phi Beta Kappa society. As a student in the Agassiz school at Penikese Island in 1873 he was drawn under the inspiring influence of this great teacher and determined to make marine zoology his life work.

Post-graduate work in natural history resulted in his receiving the degrees of A. M. and Ph. D. Subsequently for three years he studied zoology at Leipzig and under the Harris fellowship spent several months at this work on the Mediterranean coast at Naples and Villa Franca.

Appointed assistant in the Museum of Comparative Zoology at Harvard he held this position for many years in charge of the lower invertebrates. This and other duties connected with zoology occupied his attention until 1888, when during a trip to California he became interested in ethnological problems. It may be noted that his literary product during his career as a naturalist numbers 69 titles. Dr. Fewkes had become widely known as a marine zoologist.

Leaving this work behind he took up his ethnological studies among the Pueblo Indians under the patronage of Mrs. Mary Hemenway of Boston. His first work in this new alignment was in the summer of 1889 and 1890 at the pueblo of Zuñi, New Mexico. At this period he was first to employ the phonograph in recording Indian songs, many records being made and later with other cylinders transcribed by Mr. B. J. Gilman for the *Journal of American Ethnology and Archeology* under the titles *Zuñi Melodies*, and *Hopi Songs*. The journal mentioned was founded by Dr. Fewkes who was also editor; volumes 1-5, 1891-1895 appeared. A majority of the articles appearing in this journal were on his researches at Zuñi.

The ceremonials of the Pueblo tribes forming as they do so large an element in the social life of these Indians forcibly attracted his attention. Setting about to record ceremonies with the detail of a naturalist he chose the Hopi as more amenable to study and shortly had so impressed them by his friendliness that he was initiated into the Antelope and Flute priest-hoods. The Hopi study resulted in a long line of papers on religious ceremonials and traditions. Especially interesting is the Snake dance on which Dr. Fewkes published several authoritative papers.



JESSE WALTER FEWKES
1850—1930

The traditions of the Hopi led Dr. Fewkes into the prehistory of this tribe. The explorations at Awatobi and Sikyatki in 1895 revealed a new type of Pueblo art pottery, the decorative designs of which Dr. Fewkes was enabled to interpret through his knowledge of the existing cult art. Here was demonstrated his training as a naturalist.

Widening his field, Dr. Fewkes excavated many ruins and in some cases preserved typical examples by judicious repair. His work in this respect at Mesa Verde is of great and permanent value. Having a basis in his knowledge of Hopi cult Dr. Fewkes was enabled to elucidate many problems which arose during his explorations. While the Hopi terms might not be thought applicable to the Pueblo complex in its entirety yet the unity and continuity of this culture permit the use of the Hopi key. The collection of thousands of specimens mostly in the U. S. National Museum is a striking evidence of Dr. Fewkes's indefatigable labor in Pueblo archaeology. It is most fortunate that this body of material has been preserved for study.

In 1895 on his coming to the Bureau of Ethnology as ethnologist, Dr. Fewkes began the intensive research into the ancient Pueblo ruins which is being carried through to such success today. From 1902 to 1904 Dr. Fewkes worked in the West Indies, the important monograph, *The Aborigines of Porto Rico*, appearing.¹ This study did more than any other to give a comprehensive idea of the archaeology of the West Indies.

In the following year he undertook the exploration of the Gulf Coast of Mexico, publishing the results in a paper entitled, *Antiquities of the Gulf Coast of Mexico*. Returning to the Pueblo field he repaired the great ruin of Casa Grande in southern Arizona, and unearthed and repaired several of the important Mesa Verde ruins bringing them to the present state in which they are seen by thousands of tourists yearly. The idea of the educational and economic value of typical ancient ruins repaired and made accessible was promulgated by Dr. Fewkes who carried on some of this work through the National Park Service.

Dr. Fewkes was accustomed to take the field for a portion of every year. In 1910 he visited the Isle of Pines, Cuba, and the Grand Cayman. In 1912 he made a trip to the Lower Antilles excavating sites in Trinidad. To aid in his West Indian studies he spent the winter 1913 scanning the West Indian specimens in various European museums and continued his trip into Egypt.

The discovery of a type of pottery characteristic of the Mimbres valley, New Mexico, is to be credited to Dr. Fewkes who issued several publications on the subject from 1914 on.

¹ BAE-R, 25.

In 1918 Dr. Fewkes was appointed chief of the Bureau of American Ethnology and during this year he continued archaeological work in the west. At Mesa Verde he uncovered two unique prehistoric monuments, the Sun Temple and the Fire Temple. Carrying on the administrative work of the Bureau, Dr. Fewkes found time to continue researches in Pueblo archaeology, close to thirty papers appearing in this period.

He also planned archaeological work in the southern states especially to define the limits of possible connections with the West Indies. At Weedon island, Tampa bay, Florida, he excavated a large mound and followed with a reconnoissance of the Florida south coast.

The infirmities of age at last began to retard his progress. His last field work was the excavation of Elden Pueblo near Flagstaff, Arizona. On January 15, 1928, Dr. Fewkes retired on account of disability, and lingering until May 31, 1930, he passed on.

Dr. Fewkes was an outstanding man of science, combining the qualities necessary to produce foundation work. As an anthropologist it is evident that his success in this branch was greatly promoted by his training as a zoologist. Almost exclusively his work is the record of personal observation. Because of this it will grow more valuable with time. It is true that his methods were largely tinged with those of the pioneers of anthropology, and he found it difficult to coincide with the processes of modern expanded science, preferring, for instance, to omit researches in stratigraphy from the study of culture. Like many of the old school he possessed an extensive foundation of general culture which in effect militated against pursuing a specialty.

Dr. Fewkes received many honors from learned societies and other bodies. He was made Knight of the Royal Order of Isabella la Catolica in recognition of his distinguished services at the Columbian Historical Exhibition at Madrid in 1892. From King Oscar of Sweden he received a gold medal "*Literis et Artibus*" for his discoveries in anthropology. He was a fellow of the American Academy of Arts and Sciences, member of the National Academy of Sciences, and officer or member of many scientific organizations. He received the degree of LL. D. for service in anthropology from the University of Arizona in 1915.

Dr. Fewkes was above average height with blue eyes, sandy hair and beard. He had a good presence, and would be distinguished in any assembly. He was friendly and had a talent for making friends that stood him in good stead in his contact with the Indians.

He married Florence Gorges Eastman who died in 1888 and again was married to Harriet Olivia Cutler whose death preceded his only a few weeks.

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UNITED STATES NATIONAL MUSEUM,

WASHINGTON, D. C.

HENRY WETHERBEE HENSHAW belonged to that school of pioneer American anthropologists who in the eighties and nineties were graduated from other professions and engaged in research pertaining to the science of man with no background save that of training in other fields and with a maze of falsities to penetrate; yet with this handicap they laid much of the foundation on which American anthropology now stands.

Mr. Henshaw, the last of seven children, was born at Cambridgeport, Massachusetts, March 3, 1850, and although receiving only the formal training afforded by the public schools, he early manifested a fondness for natural history, inherited from his mother, who, while not a naturalist, directed his attention as a child to the beauty of the bark and foliage of the trees, and pointed out their individuality and infinite variety of form and color. The Charles River marshes being only a few moments' walk from home, its banks, ponds, and ditches were the delight of his boyhood: here he "played Indian," digging and cooking clams as the Indians were supposed to have done on the same spot, and thus, we have no doubt, developing a nascent if perhaps unconscious interest in archaeology and ethnology. In these marshes young Henshaw became acquainted with their animal life, especially the birds, and having been given a gun while still a lad, his means for gathering specimens were augmented. The publication of the Pacific Railroad Reports and the Smithsonian Check List of Birds were a godsend to him; he memorized the scientific names of the common birds while still in his early 'teens.

In 1865 he entered the Cambridge High School to prepare for Harvard. A fellow student was William Brewster, with whom he became acquainted and their kindred interest in ornithology developed into close association and a warm friendship that ever continued. They worked together, Henshaw under Brewster's tuition, the two spending much time in gathering specimens of birds. Henshaw became associated also with Ruthven Deane and Henry Purdie in collecting, and gained much also from Emmanuel and E. A. Samuels, C. J. Maynard, and R. E. C. Stearns.

In 1869, a few months before the examinations for Harvard, Henshaw's health gave way. In the fall he was invited by Captain Frank Webber to spend the winter in Louisiana aboard the Coast Survey schooner *Varina*. Continuing his ornithological studies and collections until the following spring, he returned home and resumed with Brewster his collecting trips. In the fall of 1871, Henshaw, Brewster, Deane, Purdie, and later W. E. D.

Scott and Ernest Ingersoll, met at Brewster's home, first to read and discuss Audubon's Birds. These gatherings resulted in forming the Nuttall Ornithological Club, as a natural sequence of which the American Ornithologists' Union sprang into existence, with its noteworthy journal, *The Auk*.

In the fall of 1870 Henshaw's father moved to Grantville, now Wellesley Hills, and soon afterward the son made the acquaintance of Isaac Sprague, the artist, who had been associated with Audubon and who was then making drawings of plants for Asa Gray, and he met also Bradford Torrey. Ever eager to learn, and being of a serious and earnest nature, the youth gained much from these early acquaintances and was ever proud of the knowledge he had derived from such living sources.

During the same autumn Henshaw went to Florida on a bird-hunting trip, which lasted until the close of the following May. Some time later, at the instance of T. M. Brewer, he was offered the secretaryship of the Boston Society of Natural History, which he declined, the confinement of an indoor position not appealing to him; but his scientific reputation was becoming established.

In July, 1872, Henshaw received a telegram from Professor Spencer F. Baird, Assistant Secretary of the Smithsonian Institution, asking if he would go to Utah as natural-history collector on the Wheeler Survey. Asking for further information, he received it in the form of another message: "Report immediately at Salt Lake City; pay transportation and take receipts." With no further advice Henshaw undertook the journey and reported to Wheeler. His first trip from Salt Lake City was a collecting one with Dr. H. C. Yarrow. By a strange coincidence, Mr. E. W. Nelson, who many years afterward succeeded Henshaw as Chief of the United States Biological Survey, was collecting in the same neighborhood, unknown to each other.

The season of 1873-1874 took Henshaw among the Apache; but his prime interest continued to be ornithological. In 1875, however, the operations of the Survey continuing to California, Henshaw had his first taste of archaeological work when he visited Santa Cruz island for the purpose both of making natural history collections and of participating in the archaeological investigations of Paul Schumacher for the Smithsonian Institution. Remaining on the island a short time, Henshaw went with Yarrow to Moore's island, ten miles from Santa Barbara, where three weeks were spent in excavating burial places that abounded there.

The Wheeler Survey having been absorbed by the United States Geological Survey in March, 1879, Henshaw was offered by Baird, who had

become Secretary of the Smithsonian Institution, the position of Curator of Herpetology in the National Museum; but this he declined, and in 1880 accepted the invitation of Major J. W. Powell to attach himself to the recently established Bureau of Ethnology, with the understanding that if the new field proved to be congenial he should make it his life work. Powell always believed that a biological training was a prerequisite to a successful career in anthropology.

Powell long had in mind a classification of the Indian linguistic families of America north of Mexico, and the means now having been afforded, Henshaw's first assignment in the Bureau was to this task, which included also the preparation of a map exhibiting the earliest known habitat or the regions inhabited by the Indians at the time they were first met by white men.

It was Henshaw who proposed and followed the biological method of linguistic stock precedence and nomenclature, and while he, with the aid of others (notably Gatschet, J. O. Dorsey, and Mooney), conducted the research incident to the classification, Powell was the moving spirit, and the final result, expedited by the approaching appearance of Brinton's *The American Race*, was published in 1891, under Powell's authorship but with credit to Henshaw, in the Seventh Annual Report of the Bureau.

Directly connected with the linguistic classification of Indian stocks was the preparation of a synonymy of tribes and settlements north of Mexico, which Powell also had long in mind and which became indispensable to the compilation of materials on which the linguistic stock classification, and the linguistic bibliographies of Pilling, were largely based. The results of the previous labors of Otis T. Mason and of Garrick Mallery in this direction were taken over by Henshaw in 1885, the entire staff of the Bureau for a while was later assigned to the task, and in time the synonymy was so elaborated by Henshaw that it became the skeleton of the *Handbook of American Indians North of Mexico* published by the Bureau in 1907-1910.

At the inception of these researches Henshaw found a serious lack of linguistic information respecting some of the more obscure groups of Indians in California, Nevada, and Washington, therefore as opportunity offered he journeyed to the Pacific slope where he spent many months in 1880-1881 and 1883-1884 in an endeavor to elucidate the problems then involving several lesser linguistic families. In California he visited the Washo and Panamint, the remnant Chumash of San Buenaventura, Santa Barbara, Purísima, Santa Inez, San Luis Obispo, and Santa Rosa island, as well as San Miguel and San Antonio which were shown to be of

the Salinan stock, and four Yuman groups about San Diego and San Luis Rey. Vocabularies from these groups proved their linguistic relationship or independence and added much to the meager knowledge respecting many of them. During the first of these journeys Henshaw conducted investigations also with respect to the Tenth Census, making it the opportunity to obtain information on the status of the Indians at that time, their advance in civilization and education, their future needs, and many ethnologic data for study and publication. A large body of information was gathered, but lack of means prevented elaboration into published form.

In 1888 Henshaw gathered linguistic data among the Cayuse, Umatilla, and Nez Percé, in Washington, and continuing into California, made similar studies among the few Indians about Monterey and Santa Cruz, thereby substantiating what was designated the Costanoan family. From the two survivors who could recall it, a vocabulary sufficiently copious to enable the determination of the Esselenian family was recorded, and similar research was conducted among six survivors at Tomales bay who spoke a dialect of Moquelumnan.

The burden of the directorship of the growing Geological Survey bearing heavily on Powell, he relegated to Henshaw the details of administration of the Bureau of Ethnology about this time, these additional duties being carried on during the following four years. The health of Henshaw suffering under the strain, Powell sent him, in the spring of 1892, to the Southwest and to southern California where he resumed his field investigations and gathered collections for the Bureau's exhibit at the Chicago Exposition. He remained in California until the following spring, when, his condition not improving, he resigned from the Bureau and in December, 1894, sailed for Hawaii, where he remained until 1904, returning to Washington early in 1905 with health more or less restored. While in Hawaii he became a citizen of the little republic, but again became an American when Hawaii was annexed in 1898. In the islands he applied himself assiduously to photography, in which art he became an expert, and the demand for his pictures was so great that they found their way to many parts of the world. His negatives were purchased in 1920 and presented to the National Geographic Society.

In June Henshaw entered the Biological Survey as Administrative Assistant. In December he became Assistant Chief, and on June 1, 1910, succeeded Dr. C. Hart Merriam as Chief thereof, a position which he held until December 1, 1916, when he retired from the service. His health again became precarious, and during the last years steadily declined until, at Washington, death came on August 1, 1930, in his eighty-first year.

Throughout the years when scientific activity in Washington was in its renaissance, Henshaw was a leading spirit. Becoming a member of the Anthropological Society of Washington in 1880 and of its council in 1882, he was ever active in promoting its aims. He became editor of the *American Anthropologist* (old series) when in its second year, a labor which he continued through the ninth volume (1896). Henshaw and Holmes were among the founders of the Cosmos Club, that gathering-place of scholars so well known throughout the land.

Of an exceptionally modest disposition, Henshaw was inclined to retire to the background rather than to seek preferment above others. He was possessed of a subtle wit, was forceful, frank, and lucid in the presentation of scientific testimony, and while caustically criticized for his conclusions in regard to animal carvings from mounds in the Mississippi valley, no one ever had cause to say that he was not the soul of honor.

The titles of Henshaw's published anthropological writings in addition to various book reviews, follow:

Cliff House and Cave on Diamond Creek, New Mexico. Report on U. S. Geographical Surveys, 7: 370-371, 1879.

[Introductory note to] The Account by the Pilot Ferrel of the Voyage of Cabrillo along the West Coast of North America in 1542. *Ibid.*, pp. 293-314, map.

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Mound Exploration in Georgia. *Ibid.*, 3: 102-104.

Archæologic Discovery in Idaho. *Ibid.*, 3: 200. (Note.)

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MUSEUM OF THE AMERICAN INDIAN, HEYE FOUNDATION,
NEW YORK CITY

August 29, 1930

Dear Mr. Gifford:

Replying to your letter of the 22nd instant, I regret to say that I shall not be able to write the obituary notice you wish of Henry W. Henshaw. A similar request has come from Science.

I first met Henshaw in 1872. During that year we were on rival government surveys—he on the Wheeler Survey, I on the Hayden. At that time W. H. Holmes (once chief of the Bureau of Ethnology) and G. K. Gilbert (America's leading geologist) also were on these rival surveys—Gilbert with Wheeler, Holmes with Hayden.

One of the results of these 1872 contacts was that Henshaw, Gilbert, Holmes, and I became intimate personal friends—an intimacy that continued until the time of Gilbert's death.

Henshaw, as you know, prepared at Major Powell's request the historic map of the Indian tribes of North America—a map that with the help of numerous collaborators represented the then extant knowledge of the areas occupied by the various stocks and tribes. Naturally it was a great advance over Gallatin's map—which for its period was equally important.

At the time Henshaw was engaged in the preparation of the map he was at work also on a Synopsis of North American Tribes (the title of which—Tribes of North America—was subsequently changed to Handbook of American Indians). Of this material Henshaw published a large quarto brochure, copies of which were distributed to several American anthropologists for suggestions and additions.

The work was so stupendous and required the labor of so many men that it was not completed until long after Henshaw had left the Bureau—in fact not until 1907 and 1910, when Hodge, then chief of the Bureau, succeeded in publishing it for the benefit of all students of American Indians. Hodge, as you may or may not know, was Henshaw's personal assistant at the time Henshaw brought out the Powell map and the large quarto sample brochure of the contemplated Handbook.

Henshaw was a versatile man of many interests. As a young man his first love was ornithology. His father lived at Wellesley near Cambridge. Cambridge was then the home of William Brewster, Thomas M. Brewer, Ruthven Deane, C. J. Maynard, and other ardent young bird students whose names now occupy high places on the roll of honor of American ornithologists.

In this connection it should be recorded that Henshaw and William Brewster while young became our most proficient field ornithologists, and in the preparation of bird skins set a standard which has been followed to the present day. Half a century ago I was an interested witness of skinning matches between Robert Ridgway, Dr. Elliott Coues, Henshaw, and Brewster. The two latter were nearly a tie. If my memory serves me correctly, Henshaw skinned, poisoned, stuffed, labeled, and completed the preparation of a small bird inside of three minutes.

From early manhood until well after middle age Henshaw was enthusiastic in his work and entertaining in conversation—one whose companionship and advice were sought. At the same time he was modest and diffident, and only rarely could be induced to present papers before scientific societies.

Major Powell intended that Henshaw should succeed him as head of the Bureau of Ethnology; but Henshaw dreaded to assume authority over his associates and was extremely sensitive to criticism.

On leaving the Bureau he went to the island of Hilo, Hawaii, where he remained for about ten years. He made field studies of Hawaiian birds and prepared a paper on the ornithology of the Islands. During the same period he took a series of rather remarkable photographs of island scenery (using glass negatives of large size and permanent platinum paper for the prints). The sale of these through a business establishment in Honolulu furnished him a comfortable livelihood during his long period of self-imposed exile.

On his return to Washington I secured his appointment as administrative assistant on the Biological Survey; and later, on resigning from the Survey, named him as my successor.

After resigning from the Biological Survey he became interested in the work of our mutual friend, Dr. Albert Mann, with whom he associated himself in the study of Diatoms, showing much skill in the preparation of microscope slides.

During his later years he was much alone, especially evenings, and amused himself in assembling a number of albums of photographs (mainly taken by himself), and in listening to musical victrola records, of which he had a goodly number.

His final mental breakdown may be attributed, I think, to the loneliness of his declining years.

In beginning this letter, I had no intention whatever of writing so much. However, if any of the facts here given are of value to you or whoever writes the notice they are at your disposal. Dates and more exact information could be easily furnished were I in my Washington home.

Very truly yours,

C. HART MERRIAM

LAGUNTAS, CALIFORNIA

BOOK REVIEWS

METHODS AND PRINCIPLES

Social Research. A Study in Methods of Gathering Data. GEORGE A. LUNDBERG.
(New York: Longmans, Green and Co., 1929, 308 pages.)

This is a clear, readable, and, I think, a truly useful account of scientific method from the point of view, now so fashionable in the social sciences, that identifies "scientific method" with "quantitative method." For Lundberg science is "a technique of deriving knowledge about any type of phenomenon in the universe and then applying this derived knowledge for purposes of prediction and control." The functional aspect of modern social science is therefore the same as that of modern physics or chemistry. The historical-geographical method (Kroeber's "depiction") is recognized as a preliminary stage leading ultimately, through comparison, to the determination of uniform sequences. But such uniformities can chiefly, or perhaps only, be determined by quantification. "The statistical method is in any case the only method whereby types can be discovered and large numbers of cases classified" (p. 208). Therefore, in order for social science to become truly scientific, it must collect its data with a view to getting data that can be treated statistically. Data can be treated statistically only when they can be broken into equivalent units. The interest therefore lies in such devices, external to the observer, that make possible such objective categories: the schedule, the questionnaire, the "scale." On the other hand, the life history, the interview, the autobiographical document, may serve a purpose in suggesting hypotheses, but they cannot be treated "scientifically," i.e., "statistically." "The chief obstacle to the scientific utilization of case records and life history documents is the difficulty of . . . generalizing them statistically" (p. 173).

The future historian of science, reflecting upon the scientific philosophy that Lundberg has here ably presented, will recognize that in the early part of the twentieth century, the social sciences, not having had time to work out methods in accordance with their own materials and problems, set out to imitate the natural sciences, which by that time had achieved success and prestige. He will go on to tell our descendants that it was only an assumption that the goal of social science lay in prediction through generalization (although it may turn out that is indeed its goal). And in the second place, if he is any sort of historian of science at all, he will point out that statistical procedure is not the same as natural science. The term "statistics" must be very much enlarged if the procedure of the zoologist, distinguishing a genus or a family, is to be called statistical. Over and over again the natural scientist gets his types, arrives at his generalizations by studying cases, by getting intimate with them, by coming to know each in the light of the others, and then by a method that is quite informal, deriving a type from them. No mathematical handling of equivalent units is involved at all. If data are to be treated only by means of objective devices that permit statistical treatment, the cases can never be completely known, but only in fragments.

These objections receive support from the experience of ethnologists. Every general account of crisis rite or customary ceremonial involves an informal generalization of this sort, one made either by a native or by the ethnologist. At present ethnology is in that simple condition where the reputation of the ethnologist for accuracy and insight is the best guarantee of the validity of his account. But mere accuracy is not enough; he must be able to see sympathetically the meaning of the overt behavior in its full social context. We welcome the development of objective devices in ethnology; but it is hard to see how they can ever be more than auxiliaries, how cultural data can ever be reported so as to be treated only quantitatively. A culture is not a sum, it is a, yes, a "configuration"; the relation of the part to the whole and to the other parts is important. It is by no means obvious that observation and reporting would be more useful if it were done by filling out schedules. Intimate, thorough, and sympathetic scrutiny of the total situation is what is needed. At least it is too soon for the social sciences to confine themselves to data that can be treated quantitatively. The study of society, whether civilized or primitive, still has the opportunity of working out its methods, not by imitation, but in accordance with its own needs.

ROBERT REDFIELD

Myths of the Origin of Fire. An Essay. Sir JAMES GEORGE FRAZER. (London: Macmillan, 1930. Pp. vii+238. \$4.50.)

In this pleasing essay Sir James Frazer gives a brief account of the myths regarding the origin of fire. He draws his material from many ethnographical areas—Australia, Oceania, Asia, Africa, the New World, modern Europe, and ancient Greece. In a concluding chapter the author calls attention to the striking similarities between motifs in widely separated regions, and also to the limited number of types of motifs which these myths show. These latter he presents in their psychological or presumed evolutionary significance rather than in their geographical and cultural setting. Especially prevalent are the myths which explain why fire is resident in the respective woods from which the natives secure it.

WILSON D. WALLIS

Die Wahrheit über das Zweigeschlechterwesen durch die Gegner bestätigt. JOSEPH WINTHUIS. (Besonders kaufliche Beilage zur Zeitschrift für Völkerpsychologie und Soziologie, Jahrgang 6: 1-100, 1930.)

This is a reply to a criticism, published in the December 1929 number of *Anthropos*, of the author's *Das Zweigeschlechterwesen* (reviewed in a recent number of the *Anthropologist*). "Not for love of the fray have I taken up the pen, but for love of truth, that truth may triumph. For nothing is more detrimental to Christendom and culture than the triumph of error. 'The truth shall make you free.' "

The author defends his previous thesis that primitive thought, at least in Oceania, particularly in Melanesia and Australia, is shot through with sex motif. It appears abundantly in myth, conversation, art, religion, ceremony.

WILSON D. WALLIS

Phonophotography in Folk Music. MILTON METFESSEL. (The University of North Carolina Press, Chapel Hill, 1928, x, 181 pp., 68 figs.)

This book gives the results of Dr. Metfessel's experiments at the Iowa University Psychological Laboratory in methods of photographing the human voice in song, and presents in detail the conclusions reached from a study of the sound waves. He has built a portable apparatus, using motion picture films for recording sound, for field work, which is fully described, and pursued some of his researches among the southern negroes. His chief interest seems to have lain in the vibrato as the essential element of beautiful emotional singing, and as a measurement of the expression of emotion in music. An effort to compare the vocal characteristics of different noted singers was also included in the researches.

Although Dr. Metfessel, and Professor Seashore who wrote the Introduction, seem to have been primarily concerned with the vibrato, they claim, with entire justification, that the photographed sound waves are a complete record of everything conveyed by musical expression, and that these may be measured and analyzed by instruments of precision so as to permit of the isolation, description, and classification "of all types of variants, from the cold, non-emotional, and mechanical production of tones, to the most highly artistic expression of aesthetic emotion."

They speak rather disparagingly of the methods anthropologists have hitherto been forced to use in recording and studying primitive music by means of phonograph records, of their reading and interpreting them by hearing only, and transcribing them in ordinary notation, although these statements are not exactly true.

It is stated that the cost of reducing four-minute records by the new method to film and score for publication would lie between fifty and seventy-five dollars apiece, but claimed that this price is not prohibitive when it is considered how vastly superior is the product to that hitherto used by anthropologists, and the practically unlimited amount of time that may be spent in special study and interpretation of the records without wearing them.

For the kind of study which primarily interests these investigators, such as variability of vibrato, attack and release of tones, various manifestations of emotion and certain phases of physiological psychology, no doubt the film records, and a moderate number of them, may suffice. Anthropologists, however, are not more interested in these problems than in discovering the characteristic features of musical composition of each group of people to be studied, and in comparing tribal styles. This entails not only the discovery of peculiarities of voice production likely to be common to whole racial groups of singers (as certain phonetics may be to large masses of humanity speaking a single language), nor even the range of individual variation in such minutiae, but involves as well the larger survey, both in number and structural features of composition, etc., of tens, or more often hundreds, of songs belonging to each tribal group. For it appears that styles of musical composition may be vastly different for different kinds of songs used by one and the same group, and to compare the music as a whole, of different groups, involves securing records of literally thousands of songs. At this rate, the present cost of the Metfessel-Seashore apparatus is prohibitive, I venture to say, to all anthropologists. It is

not alone prohibitive in money cost, but in the cost of human labor. In order to secure any intelligible results from the waves, it is apparently necessary to expend upon each one an appalling amount of preliminary work, from the "hand counting" under artificial light, of the millimeters covered by each wave, to complex mathematical calculations. At least that was the case sometime before the book was published, when the present writer personally examined the apparatus at Iowa.

However desirable it may be to have complete and entirely accurate visual records from which not only the most minute but also the largest aspects of musical study could be made, it is necessary in the final stage, to present the music in notation capable of being read and comprehended, in order to render it intelligible to general students of anthropology and psychology and the mass of the musical public. Dr. Metfessel himself resorts to it and makes in the use of it as great compromises as, if not greater than, the compromise notations adopted by different anthropological students of music. Thus, except for some of the more minute details of sound production, a far more enormous amount of labor has been involved in arriving at a workable presentation, than is needed in the less scientific notation, to arrive at which, itself, is long, slow, careful work when properly done. This ordinary notation may be sufficiently altered to take account of most of the features essential to purely anthropological, if not to psychological, study. That the more minute features are also important, is not to be doubted. But it is somewhat doubtful if the conditions which may influence some of these features of vocal performance have been, or can be, sufficiently controlled and isolated.

It is true enough that no ordinary notation can express all that is conveyed by sound, as the complex wave can. This has long been observed and admitted by all thoughtful musicians. But it has this present advantage over the wave method—that everything noted is, or can be made, intelligible, whereas the complex wave has not yet proved entirely amenable to analysis. An important point to be mentioned in connection with the analysis of the sound wave is that of phonetics. Certain vowels, all pitches, and their duration, seem capable of isolation, but other vowels and many consonants are evidently not clearly identifiable. It has been necessary to resort to audible records continually in determining and placing the words. If this is true of familiar English texts, it will be much more true of the sounds of exotic languages, with their obscure and often very difficult consonants, so that exclusive reliance on film records is as yet far from being possible.

All this is not intended to convey the idea that the Metfessel apparatus is not a great step in advance. As a means of procuring exact visual records of sound, in all its ramifications, the clever devices developed at the Iowa Laboratory meet the requirements. The fact that similar mechanisms have been developed elsewhere, although at the expense of much less mobility of apparatus and even greater cost, does not detract from the achievement of Dr. Metfessel. Anthropologists have long recognized that the phonograph method alone is inadequate. Many types of mechanical apparatus for recording and transcribing have been examined for many years, in the hope of finding more accurate and practicable methods, not only from the standpoint of cost in money, but in time, which is an essential factor. That the

present form of this new apparatus does not meet all the practical requirements, does not prevent anthropologists from hailing it with interest and appreciation as the forerunner of what, it is to be hoped, will evolve into something more adaptable to their particular needs.

Dr. Metfessel's book contains many graphs of sections of songs recorded by the wave method, some accompanied by ordinary notation, some not, and by other analytical features. There are series of motion picture strips, depicting changing facial expression of the singers, taken synchronously with the song records. Each song example is accompanied by detailed discussion.

The author has been able to isolate certain vocal ornaments which, he leads his readers to infer, would not be heard unless the reader had before him a visual record of what was happening, as well, which seems a little peculiar. Throughout the book Dr. Metfessel is prone to class the ears of all musicians as crassly incapable of finer perception and to consider that those trained in European music invariably interpret pitches intermediate to European chromatics in terms of the nearest of these. This may be true of numbers who claim a knowledge of music and is notoriously true of many concert singers, but is not applicable to many instrumentalists and to hundreds of naturally gifted people. He states that probably some of the vocal ornaments are not confined to negro singing, but are characteristic of it as contrasted with artistic singing. He says "The question as to which of these patterns just described are distinctively African Negro must await phonophotographic studies of European and African folk song."

Discussing scales, the author is inclined to believe that intervals, the limits of which in the course of repeated appearance during a song tend to center at certain points, are intended to be defined by these points. He thus accounts for an "intentional" neutral third, the upper limit of which lies midway between a major and minor third above the lower. This is a favorite point of discussion and speculation by many students, who have not relied on visual records to observe this interval. Before considering it to be intentional in the particular song or songs in which it was observed, it seems to me that studies should be made (1) on the degree of ease with which a given type of third may be sung. It may be that minor thirds are more often perfectly reproduced than major, at least with some individuals, and that certain factors tend to influence the singing of major thirds toward neutral. In years of teaching and chorus and glee club work, I have noted that thirds tend to give trouble, even with trained singers of a certain type. (2) One of the conditions affecting proper pitching of tones from the standpoint of the melody, is its accompanying text, with its word intonation. The relation of phonetics and language to tone production in song is a subject about which practically nothing is known at present and which, it seems likely, is very important. (3) The propensity to "under-sing" certain intervals, perhaps notably the third, may also be the result of emotional disturbance, or even that of bad air. (4) It should also be kept in mind that any interval in a song, except the first and last, is indissolubly linked, each of its delimiting tones serving as one limit of the intervals lying on either side of it. Such modifications of pitch from European standards as may be observed, not only in

primitive, but in artistic singing, may thus apply as much to the surrounding intervals as to the one under discussion, and either of the surrounding intervals, in its own nature, may affect the rendition of the one in question. The pitch may be influenced, much as stellar bodies are pulled in space by the presence of other bodies, by the general direction of the melody and the prominence of certain of its tones, or by a tendency on the part of the singer to attenuate or actuate melodic curves.¹

H. H. ROBERTS

An Introduction to Social Anthropology. CLARK WISSLER. (New York: Henry Holt & Co., 1929. X, 392 pp.)

A cursory inspection of Dr. Wissler's latest book might suggest that it is a work of the order of Tylor's *Anthropology*, the chapter headings indicating such topics as "The Economic Base," "Marriage," "Animism," "Magic," etc. Actually, the author's purpose, as explicitly set forth in the Preface, is a quite different one. He has written a text for students of the social sciences not specializing in anthropology but eager to acquire "a minimum of descriptive data and as comprehensive an interpretative view as time permits." Dr. Wissler solves his problem by "presenting the research leads of anthropology in their historical sequences."

Accordingly, the chapter on "The Tribe" begins with references to Morgan, Maine, Bachofen, and McLennan; "Relationship Systems" with Morgan; "Mythology" with the Grimm brothers, Max Muller, Kuhn, and Brinton. Naturally no two anthropologists would agree as to either the topics that should be stressed or as to the comparative importance of "research leads." Personally I am not prejudiced against the study of kinship terms, but I consider it odd that a whole chapter should be devoted to it. On the other hand, the slighting of technology and the omission of art seem inexplicable in view of the important results achieved by the ethnographic approach and Dr. Wissler's own contributions to these departments of our science.

In the judgments on specific points of anthropological fact and theory there are naturally some that provoke dissent. To the reviewer the exclusive emphasis on *primitive* culture in the initial definition of anthropological aims seems exaggerated (14 ff., 55), being logically unwarrantable and even practically impossible at times. In setting the upper population limit of the political primitive at 2,000 souls (36) Dr. Wissler evidently forgets dozens of African cases. In the South Seas—contrary to a statement restricting the culinary art to women (59, 156)—men are known to prepare meals quite regularly. Unless my authorities have been superseded, rye and oats do not date back to the Neolithic in Europe (69). I think it is unfair to say that anthropologists are not interested in political organization (130). The dearth of relevant material for America owing to changed modern conditions seems to have misled the author here; the Polynesian and African data

¹ H. H. Roberts, Variation in Melodic Rendition as an Indicator of Emotion. *Psychological Review*, 34: 463-471, 1927.

would tell a different story. It is surely wrong to say that all recent American students reject correlation of kinship terms with *any* form of social procedure (182); whatever criticism may be justly leveled at extremists, some correlations are among the most certain results not only of anthropology but of all science and logic. Finally, the omission of Von Hornbostel's name in the reference to primitive music (278) seems curious.

One of the most attractive features of the book is undoubtedly the abundant use of material quoted from field reports. Dr. Wissler, it is clear, strongly felt that this was an appropriate, as it is the only possible, compensation for lack of field experience.

The book undoubtedly requires a good deal of supplementary activity on the part of the instructor. But with such cooperation it certainly can become an effective instrument for vindicating the ways of anthropology to a wider circle. Last summer I used it with precisely the type of students for which it was designed and felt at the close of the term that they had gained some conception of the major problems of anthropology and of some of the achievements made in the objective study of group phenomena.

ROBERT H. LOWIE

Outlines of Sociology. JOHN LEWIS GILIN and FRANK W. BLACKMAR. (New York; Macmillan, 1930. 3rd ed., x+692 pp. \$3.00.)

This is a very thoroughly revised and re-written edition of a college text which first appeared in 1915, and won wide favor. The first mentioned author appears to be responsible for the revision, although no statement to that effect appears. There is a treatment of social evolution and primitive society and primitive belief. Here, as in several other recent texts in sociology, one finds acquaintance with and references to the work of Goldenweiser, Lowie, Kroeber, Jenks, Wissler, Tozzer, and other American anthropologists. A chapter on culture has been introduced into this volume, but, curiously, there is no reference to the contributions made by other sociologists in this field (notably, Ogburn and Willey). Unlike most texts, there are numerous footnote references to authors and sources. The selected bibliography at the end of the volume does not appear to have been as thoroughly revised and modernized as has the treatment of chapter topics. The style is direct and easy, the exposition excellent. Each new moon sees a new sociology text come from the press of this country, and there must be enough now to sink a dreadnought. But there should be ample room on some new vessel for a text of the high merit of this one.

WILSON D. WALLIS

AFRICA

Races of Africa. C. G. SELIGMAN. (London: Thornton Butterworth, Ltd., Home University Library, 1930. 256 pp., 3 maps.)

This is a welcome volume, especially in view of the dearth of compendious works dealing with Africa as a whole in English. It is done with the authority

and conservatism expectable of Professor Seligman. it is marked by balance and plays no hobbies. The allotment of space is: Introduction, 15 pages, Bushmen, Hottentots, Negritos, 28; True Negro, 44; Eastern Hamites, 32; Northern, 29; Half-Hamites and Nilotes, 24; Bantu, 52; Semites, 16. All the more important peoples are mentioned and classified, and wherever data are available, the physical type is indicated and the culture compactly outlined. This plan scarcely makes for intrinsic readability, but renders the work one of convenient reference for orientation. The three sketch maps serve their purpose admirably, but an additional one showing the approximate situation of the principal tribes would have helped. One has not always the map at hand with which Professor Seligman says the book is intended to be read, and a localization like "eastern Kenya" is likely to be as vague in many visual imaginations as "western Minnesota" would be to most Europeans. There is no discussion of and scarcely any allusion to the Egyptian-diffusionist, Kulturkreis, or analogous hypotheses; but views like those which derive the Hamites from Asia and the Bantu from the lake region are approved as tentatively probable.

The book is different in emphasis of objective from any comparable one that might be produced in America. The first question always implicit is, Where did this people come from and what are its origins? This puts race and culture on the same plane and interweaves their consideration, where Americanists tend to separate them as much as possible. Culture as such is treated as it occurs among single people or groups of tribes, never as regards the wider distribution of its parts or aspects. Thus age-grading in east Africa would by us be treated as undoubtedly a single development, and attempts might be made to trace its source, spread, and relations to other facets of the cultures in which it occurred. Professor Seligman describes the institution separately, and without further comment, for the Galla (122), Masai (164), Akamba (221), because these are respectively Hamites, Half-Hamites, and Bantu. In short, the primary consideration is not cultures but the peoples that carry cultures—as the title *Races of Africa* correctly indicates. Brinton's *American Race*, now nearly 40 years old, is the last American counterpart. Naturally, anything like a culture area approach is out of the question. These remarks are made not in criticism, but in order to elucidate the aim and treatment of the book and to emphasize how heterogeneous—perhaps happily so—anthropology still is.

A. L. KROEBER

At the outset Dr. Seligman is aware of the difficulty under which he approaches his task of presenting an account of the races of Africa in the short compass of a volume of the Home University Library. This however, is not the most formidable of the obstacles. This is not a series which allows photographic illustrations, and there can be no doubt that clear presentation of a popular kind is almost impossible without some pictorial aid.

In reviewing a book, judgment must be made with regard to the subject matter and arrangement in relation to the public for whom the book is intended. Volumes

of the Home University Library are, I believe, intended for the general reader whose interest is due to a desire for a brief outline of many branches of knowledge. The *Races of Africa* is a book which will be of great service to students of anthropology; moreover it slips easily into the pocket, and is one which I should like to carry into the African field. This small volume contains a vast amount of accurate information, much of it from the author's well known personal research in Africa, and the rest from well accredited sources. To a university lecturer who is giving outline courses on the ethnology of Africa the book will prove a valuable aid.

I am nevertheless doubtful whether the general reader, actuated by no interest other than that of improving his general knowledge, will care to peruse the book carefully. Dr. Seligman has tried to make good the necessary absence of illustrations by very careful records of physical measurements, including cranial indices. In spite of the explanations, clearly given, I doubt whether the interest of the general reader will survive through the comparisons of figures of measurement.

Details respecting linguistic differences are clearly presented, but these, like physical measurements, are the aspects of the subject which are of the least interest to the general reader. Ethnology receives some attention but technology is neglected. I imagine that one who wishes to acquire an outline of the races of Africa is interested chiefly in occupations and culture patterns. As an ethnologist Dr. Seligman is over anxious that there shall be no misunderstanding, and no omission of points of scientific importance.

For the purpose of conveying an accurate though popular impression of the races of Africa I think the division of the continent into a few culture areas would have been of primary importance. Physical differences and linguistic divisions should have received a brief treatment, while the greater part of the book should have been devoted to pen pictures of types of life in the great natural zones. Had Dr. Seligman given a series of descriptions as realistic as his account of the life of the Kababish of Kordofan, the book would have had a well deserved popularity. The student must be grateful that Dr. Seligman decided to condense African ethnology rather than indulge in a bright and attractive presentation of modes of life.

WILFRID D. HAMBLY

Nuer-English Dictionary RAY HUFFMAN. (Berlin Dietrich Reimer [Ernst Vohsen], 1929. 63 pp.)

To the first fifty-three pages of dictionary in this little volume are added ten pages of grammatical notes. The work is entirely unpretentious and is not intended to be more than a preliminary introduction to the study of this African language. Nevertheless the work seems to be well done and the phonetic system used is clear and competent.

Nuer belongs to the Nilotic group of "Sudanese" languages and is thus related to such languages as Shilluk, Bongo, Dinka, and, further south, Masai, Nandi, and Latuka. Nuer does not seem to possess the gender system of Masai but it has a

number of characteristics that link it with Shilluk, which has been described in some detail by Westermann. The language seems to be essentially monosyllabic but it makes use of a number of internal stem changes in the manner of Shilluk.

On page fifty-four the author mentions "change in intonation" as one of the methods of forming the plural of nouns. In this respect again Nuer would seem to be parallel to Shilluk. The tone system of Nuer, however, is not discussed and the tones are not marked in the dictionary nor in the grammatical remarks. More and more we are coming to see that pitch is an essential characteristic of the great majority of African languages, including under this term Bantu, "Sudanese," Hottentot, and Bushman. It is true that there are African languages in which tone is morphologically unessential but these seem to be the exception rather than the rule.

H. SAPIR

Les Banyamwezi of East Africa. FATHER T. BOSCH. (Published by Anthropos in the International Collection of Ethnological Monographs. R.M. 31.50.)

The task of reviewing some 542 pages supplemented by 50 illustrations might at the outset be somewhat forbidding were it not known that this well indexed volume is a presentation of the kind so much required in African ethnology. Of Father Bosch's illuminating and painstaking research among the Banyamwezi there is preliminary evidence in the pages of *Anthropos*.¹ These brief papers provide but an introduction to the substantial volume recently produced.

The work deals very thoroughly with religion, social and political organization, the cult of ancestors, totemism, and the system of magic of which many concrete examples are cited. There is also some careful research into the subject of family life and moral standards. The volume will be of great service to ethnologists, missionary workers, and those concerned with administration.

The object of Father Bösch has been to examine rather than to condemn. Unlike missionaries of a generation ago, who regarded the social pattern of aborigines as something to be hastily swept away, the investigator has realized that successful effort depends on a preliminary apprehension of the native point of view.

At the outset Bosch considers the difficult task of determining native ideas regarding a divinity. A list of names which are applied to some being, or beings, of a supranormal kind leads to the preliminary conclusion that the Banyamwezi are polytheistic. Bösch refutes this, however, by detailing conversations which seem to show that Kulanga Lyulwa (He who directs the sun) and Kulunga (The perfect) along with many other titles refer to the same being. Incidentally, I was interested to find Kalunga mentioned among the Banyamwezi, as I recently found the name among the Ovimbundu of Angola and with the VaKuanyama.

Bosch insists that the god of the Banyamwezi is not the god of some early missionary teaching. But the decision of one even so competent as Father Bösch

¹ Le culte des ancêtres chez les Banyamwezi, *ibid.* 20, p. 200 1925.

must be received with some reservation. In reviewing his own long experience and that of Father Van Wing, Torday² comes to the conclusion that Nzambi Mpungu is not a god but the ancestors. This was the ultimate finding with regard to the supposed theistic beliefs of the people known as BaKongo. Of the worship of ancestors among the Banyamwezi Bösch gives considerable evidence while admitting that the god is much neglected.

Tout le culte qu'il rend à Dieu dépend entièrement des circonstances, c'est un culte occasionnel.

Bösch was not able to find animistic beliefs relating to spirits dwelling in caves, rivers, or mountains, but belief in the survival of a soul after bodily death appears to be tenaciously held.

The mention of making new fire each year, likewise at the death of a king, adds to the already existing data some points of importance.

In part 5 the author begins the study of social morphology by a detailed consideration of the family in its broadest sense, that is as an institution involving marriage, education of children, property rites, and domestic slavery. The account of assistance given by the father and a midwife, when twins are born or the child is presented feet foremost, introduces some ideas which are new to me. Both father and midwife must be quite naked during the delivery.

Elle doit faire tout son service en costume d'Eve, le père assiste en costume d'Adam.

Twins are considered as important as royalty, in fact the royal drums and regalia are requisitioned for the welcome dance. Burial takes place in the pre-natal posture with the face directed toward that part of the country from which the deceased originally came. When the king is near death he is strangled, but the news of his decease is not made public. It is said that his condition is serious.

Father Bösch says of totemism:

It is an object or an animal, sometimes a tree or a plant, which they revere in remembrance of their ancestors.

Totemism has some intimate connection with the cult of ancestors and is likewise associated with magic. Bösch gives a long list of the totems, families who acknowledge them, and the places of origin of these families.

Magic is defined as

An assemblage of practices and superstitions [perhaps "beliefs" would be a better word] by which they seek to reach an end by means of hidden forces which are mysterious and not natural.

The account gives details of therapeutics, divination, and the organization of a caste of snake charmers.

The book concludes with a welding together of the parts of the social life in such a way as to show the psychological bearing of one aspect of the organization upon another.

² Torday, Dualism in Western Bantu Religion and Social Organization. JRAI, 58: 225, 1928.

Unfortunately there is no technology in this volume, but no doubt Father Bosch has the information which would be of great value to those concerned with that subject in ethnological museums.

WILFRID D. HAMBLY

AMERICA

Ethnology of the Mayas of Southern and Central British Honduras. J. ERIC THOMPSON. (Field Museum of Natural History, Publ. 274, Anthropological Series. 17: 2-196 pp., 24 pls., 1 map, 1930.)

This is conscientious study of the ethnology of several relatively pure Maya villages in southern and central British Honduras made in connection with expeditions for the British Museum and the Field Museum. The Maya are mostly of Kekchi or Chol stock from the Alta Vera Paz region of Guatemala with a fair number of immigrants from Peten and Yucatan. It is compactly written and has a great deal of ethnological information for the bulk of the publication, especially as some sixty pages are folklore. There are several suggestions that a greater time spent among the people with more numerous informants might have revealed more data, particularly on the non-material aspects of culture.

The Maya in the region covered by the volume still follow the milpa system of agriculture undoubtedly inherited from pre-conquest days. New land is usually cleared each year, the same piece not being used again for at least four years. Practically all the original native plants are still cultivated with an addition of European plants, few of which have become of great economic importance. Life is still wholly bound up with agriculture and in spite of the nominal Christianization of the Indians, belief and ceremonial are almost completely aboriginal in flavor, being concerned primarily with agriculture and secondarily with hunting and fishing. Many of the aboriginal deities are still far more important than the Christian God and the Saints.

Excellent detailed accounts are given of a number of technological processes. It would be interesting to have more of these. The method of preparing tortillas, for example, is given in detail and is rather different from that employed generally in Sinaloa and Sonora in Northern Mexico. The Maya place the metate on a stool about waist high, while the women of the west coast frequently kneel to it. This tortilla is pressed into shape on a banana leaf by the Maya, while on the west coast it is beaten out between the hands. The Maya grease the comal lightly, which I have never observed on the west coast, and they cook the tortilla slowly, whereas on the west coast tortillas to be eaten immediately are generally cooked very rapidly.

Among the many interesting survivals noted are the worship of the mams, the most active of the native deities who must be propitiated in all undertakings, the importance of the sun, moon, and morning star, the prominence of sorcerers, the use of the altar, censer and copal incense, ceremonial drinking, use of the pellet blow gun, poisoning fish and shooting them with the bow and arrow, the musical

bow with and without the gourd resonator, the bullroarer as a children's toy, and masked dances, particularly the deer dance, which was widely spread throughout ancient Mexico and Northern Mexico and appears to have survived in an almost pure aboriginal form. Mr. Thompson also gives some evidence, both historical and technological, to show that the hammock is pre-Columbian among the Maya and not brought in from the West Indies by the Spanish as is generally believed.

The section on the cultivated plants of the Maya of San Antonio has good short discussions of an historical nature. Mr. Thompson is of the opinion that there may have been a cultivated variety of the plantain in America before the conquest. This is so contrary to the prevalent opinion that he should have given some real evidence. It is suggestive, however, that according to some early seventeenth century *Relaciones* published in the *Documentos Ineditos*, cited by Mr. Thompson, one of the principal *wild* foods for the Huastecs in the vicinity of Panuco (Tampico) was the platano. It is difficult to imagine an introduced plant becoming an important source of wild food within less than a century.

The collection of folklore is very interesting in showing the interweaving of European and native concepts particularly with regard to religion. Several versions of a magic flight myth are given which deserve analysis by an expert to determine whether they are aboriginal or not. The same is true of several other stories. The Central American field evidently offers a large group of fascinating problems for the folklore student.

One statement on page 81 should be corrected. In a list of kinship terms which Mr. Thompson implies are native the word *tata* is given as meaning maternal uncle or paternal uncle. *Tata* is vulgar Spanish for father and in Northern Mexico at least is applied by persons of the peon class to any man distinctly older than the speaker.

The volume is liberally sprinkled with references to older literature but the comparative work suffers from the lack of similar studies. One of the chief virtues of the paper is perhaps that it emphasizes once more the fact that in spite of three to four hundred years of contact with white civilization the Mexican and Central American Indian still retains elements of his old culture. A comprehensive program of ethnographical work supplemented by an examination of the documentary sources and a check knowledge of Spanish culture of the sixteenth and seventeenth centuries should make it possible eventually to reconstruct a fair picture of the Indian cultures in Spanish North America. Mr. Thompson and the Field Museum are to be congratulated on making a valuable contribution to this difficult problem.

RALPH L. BEALS

Darien in the Past. S. LINNÉ. (Goteborgs Kungl. Vetenskaps och Vitterhets-Samhälles Handlingar, 5 Följden, ser. A, v. 1, no. 3, 1929. 318 pp., 62 figs., 1 + 16 maps.)

Linné here maintains the excellent standard set in his *South American Ceramics*. He describes the result of archaeological exploration in Panama and the nearer parts of Colombia in 1927 by an expedition led by Nordenskiöld. Both the Atlantic

and Pacific coasts of the Isthmus were examined as well as the Pearl islands. On the latter, remains of two cultures were found, whose respective age seems reasonably certain, though no stratigraphy was discovered. The earlier culture built round houses, made incised or modeled pottery different from any known from Central America but thought to bear some resemblance to that of the primitive culture of Ancon, and left mounds mainly of shell, including 4 species no longer living in local waters—one of them now only with an Atlantic distribution. The later culture built rectangular houses, left mounds composed largely of sherds, and painted its pottery in a style resembling that of Chiriqui, Costa Rica, and Nicaragua. A mineralogical examination however shows that the ware was made of materials occurring on the islands.

Throughout, the point of view is comparative. The maps well sum up the comparative discussions, and may be listed. They cover North as well as South America. They review the distribution of: 1, pottery made with perforated bottom; 2, pottery grinding pans, 3, 4, flat and cylindrical pattern stamps, 5, stone weapon heads, 6, annular feet (pedestals or bases) on pottery, 7, tripod vessels, with inset showing relative frequency, 8, shellmounds, 9, flat pottery roasting dishes; 10, pottery lids, 11, bevel-edge adzes, 12, pottery mending by "crack lacing", 13, deep graves, 14, cremation and "endo-cannibalism", 15, mummification by visceral removal and embalming, fire drying, or simple desiccation; 16, pottery incense burners.

The Ecuador coast is pronounced connected with Central America "with all certainty" by water route intercourse.

The Goteborg technique and standard of scholarship are thoroughly upheld in this valuable work.

A. L. KROEBER

Dobe Walls, A Story of Kit Carson's Southwest. STANLEY VESTAL. (Boston: Houghton Mifflin, 1929. 314 pp. \$2.50.)

Dobe Walls is an excellent novel of its type. This has been recognized by the reviewers of the literary journals, who have recommended it to fiction readers. It is a good story. It is well written and it reads well.

But it is worth the attention of anthropologists for the careful and true characterizations of Plains Indians which the author has made. The Indian characters are delineated with the same clearness and fairness as are the whites. They are treated as if they were human beings—they are not all of them evil villains and none of them are the heroic noble savages of the sentimental "Westerns". Part of the story of the contact of American and Indian in the vicinity of Old Bent's Fort is here presented faithfully and justly.

This achievement is the work of a man who has known the Indians of the southwestern Plains for many years and who published a few years ago a remarkably fine biography of Kit Carson. But not all of us know that Stanley Vestal is Professor Walter Stanley Campbell, who has contributed to the *American Anthropologist* and is now, while holding a Guggenheim fellowship, writing a life of Sitting Bull.

MAURICE G. SMITH

Die Indianer Nordost-Perus: Grundlegende Forschungen für eine Systematische Kulturkunde. GÜNTER TESSMAN. (Veröffentlichung der Harvey-Bassler Stiftung. Hamburg: Friederichsen, de Gruyter, & Co., 1930. 856 pp., 13 color pls., 95 pls., 6 figs., 42 (+1) maps.)

This is an enormous, original, and remarkable volume. It contributes a mass of new ethnographic data on 49 tribes of the tropical forest of Peru. Most of these facts are brought together in a series of 37 "cartograms" or diagrammatic maps in which ingenious devices have allowed a surprising amount of detail to be expressed. Four further cartograms show the numerical frequency, in each of 33 tribal cultures, of elements assigned respectively to half a dozen culture entities (Kulturgesellschaften): Altkultur, Amazonian with West Amazonian and Ucayali subdivisions, Sub-Andean, Northern. The occurrences of these frequencies are also listed in a series of tables. However, the approach is by no means a mechanically statistical one only. It rests on a philosophy or point of view which the reviewer has difficulty in grasping completely, but which the author hopes will introduce a third period in ethnology, such as Frobenius and Schmidt have only partly anticipated. The Kulturkreise of Schmidt will not hold, but there are genuine associations of culture elements which rest upon the "inward constitution" (bestimmte innere Veranlagung) of the Kulturgesellschaften. In this inner disposition of cultures the most determinative factors are religion and the relations of the sexes. The value of the book, says the author (41), is in its aim, not in its new material on the Indians of northeast Peru.

The reviewer believes the world will think the opposite, at least until the objectives and criteria of the new method are defined more lucidly. The work is a blend of something akin to mysticism with concrete research; of intuition with statistics. Its manner recalls that of the autodidact in its originality, painstaking laboriousness, and unswerving insistence on mannerisms of treatment. Proper names are made over into German or handled freely: the Jívaro become Chiwaro, Quijos Kichos, Betoya Tukano. Some interesting and more or less novel devices of field inquiry are described; and alongside evident insight into native attitudes there is an inkling of pride in treatment of informants reminiscent of that of pre-war Prussian privates by their officer.

Of the cultural groups established, the Northern, consisting of Uitoto, Okaina, Muimane, Bora, is amply validated, by trait-count and otherwise. The Sub-Andean group really comprises only the Jívaro, with 33 elements of 57; next are the "Kandoschi" with 11 of 40. The Amazonian type is centered among the Omagua (59 elements out of 65), in fact looks as if it had been built around the concept of their culture. Next come the Kokama (33 of 42), "Chebero" (30-52), Panobo (27-40), Yameo (27-42), Chama (27-58), Aguano (23-38). These inhabit a continuous territory. The West Amazonian and Ucayali sub-groups center among the "Chebero" (16) and Chama (10 elements), in other words are subtypes superimposed on the general Amazonian type to which they primarily adhere. The Ucayali culture is defined by only 10 traits.

The "Altkultur" is represented among every tribe considered—most strongly among the Auischiri (40 of 51), Mayoruna (49 of 54), and Amahuaca (35 of 48), which are geographically discrete, the first two being separated by the "Amazonian" Omagua and Kokama. This at once raises the critical question whether the author's "old culture" is an empirical reality or a hypothetical complex. Its 47 characterizing elements include a number of positive ones such as couvade, tattooing, wooden signal drum, ear-lobe rolls and lip ornaments for both sexes, sleeping hammock; but more negative ones, such as: *absence* of marriage, adultery, sexual restrictions, menstrual practises, homosexuality, bow, blowgun, tobacco, salt, peanut, dog, weaving, canoe, pottery ornament, stool, spoon, genital dress, musical bow, Pan's pipe, rattle, god, soul, magic. Tessman is right in insisting that absences count as much as presences. But a culture type cannot be built up mainly on lacks, unless these are given a certain empirical entity by discrete and more or less compact geographical occurrence in nature. Pre- and post-Columbian degeneration, unfavorable environment, historical misfortunes, migrations, would all have to be intensively considered as factors.

That there should be tribes with highly mixed cultures, like the "Kandoschi" with 14 "old" elements, 11 Amazonian, 11 Sub-Andean, 4 West Amazonian, is expectable. The fundamental question is whether the assumed culture types are real. Historically arbitrary or nonsensical types would equally well yield pure and mixed tribal cultures. Culture areas as classificatory and interpretative devices undoubtedly have serious limitations. But their geographical reality gives them at least a measure of empirical validity. Tessman's method, though its limited geographical application gives it less extreme appearance, seems fundamentally to rest largely on a priori complexes analogous to those of Graebner, Schmidt, and Smith. In each case the author sets up the pieces and rules of the game with an invitation to the rest of us to continue the game where he leaves off.

What anthropology will be grateful to Tessman for is his mass of new data and their compact, convenient presentation.

A. L. KROEBER

Shabik'eschee Village, a Late Basket Maker Site in the Chaco Canyon, New Mexico. Early Pueblo Ruins in the Piedra District, Southwestern Colorado. FRANK H. H. ROBERTS, JR. (Bulletins 92 and 96, Bureau of American Ethnology, 1929, 1930.)

The two papers under consideration are the first fruits of the intelligently conceived, scientifically prosecuted, and admirably recorded study which Dr. Roberts of the Bureau of Ethnology is making of the early phases of Southwestern archaeology. Each is prefaced by a short statement of our present knowledge of the subject, this portion of the second book being far and away the clearest and most satisfactory summary which has yet appeared. It fulfills perfectly the needs of students in other branches of anthropology who require such a preliminary orientation to enable them to appreciate in terms of the fundamental problems of cultural evolution the significance of the original data presented. The resumé will also

he received gratefully by the constantly growing body of intelligent general readers who would like to follow prehistory beyond the Sunday supplements, but who, in most archaeological contributions, find themselves confused and repelled by strange terminologies, and swamped by details whose bearing they cannot understand.

The first paper, *Shabik'eschee Village*, records the excavation of a Basket Maker III community on the rim of Chaco canyon, northwestern New Mexico, consisting of 18 one-room dwellings and a kiva. The few burials encountered indicated a dolichocephalic population which did not practice head deformation. The houses were arranged in a crescent opening to the east. A very clear restoration (fig. 2, p. 12) makes plain the salient features of the typical dwelling. It was round or vaguely rectangular, averaged about 13 feet in diameter, and was sunk from a few inches to 2 or 3 feet into the ground. The walls of the excavation were plastered or were reinforced with upright slabs of stone. Four free-standing posts supported a rectangular framework to carry the beams of the flat roof, and also to receive the upper ends of poles which, footed about the periphery of the excavation, slanted upward and inward to form the walls. The exterior of the structure was finished with twigs, bark, and mud. Southeast of most houses was a small, probably conically roofed antechamber, opening by a short passage into the dwelling proper. A section of the floor of the houses about the entrance from the antechamber was often partitioned off by a low wall of upright slabs. In the middle of this a gap was left, opposite which lay a firepit normally protected from drafts by a single deflector slab set on the side opposite the entrance. On the other side of the firepit there was usually a small hole in the floor. In the supposedly flat roof there was a smoke-hole which may also have served as a ladder-reached hatchway.

The structure identified as a kiva lay in the western part of the cluster of dwellings rather than, as would have been predicted, in the semi-enclosed courtyard. It was sunk nearly 4 feet into the ground, was 40 feet in diameter, and was encircled by a low bench. Four posts carried a roof similar to those of the dwellings. In the floor was a firepit, and between this and the southeastern part of the wall a deflector slab argued the former presence of a ventilator or entrance passage.

The data here so briefly summarized are set forth by Dr. Roberts with exceptional lucidity and precision. He supplies plan and section of each structure; minor features of each are described in the same order, thus facilitating comparison; and measurements are sequentially grouped. The method of presentation could not, it seems to me, be improved.

The facts once recorded Dr. Roberts proceeds to interesting interpretations, taking praiseworthy care that the reader shall not fail to distinguish between what is logical deduction and what is speculation. In the latter category are his remarks regarding the possible collateral relationship between the *Shabik'eschee* dwellings and the surprisingly similar pit-houses of certain Palae-Asiatic peoples. This is obviously a matter of extreme importance, for it bears directly upon basic problems of the population of the New World and of the independence or non-independence of American cultures. Final judgment must rest, as Dr. Roberts points out, upon more detailed studies of house-types, ancient and modern, in both continents.

Should the Asiatic hypothesis prove correct the very pretty theory of the local development of the Basket Maker III house from the Basket Maker II storage cist would fall to the ground, and we should have either to find Basket Maker I and II houses comparable to those of Basket Maker III or else postulate the introduction into the Southwest of this passage-entered type of pit house—presumably from the west or northwest, at about the beginning of the Basket Maker III period. Be these things as they may, Dr. Roberts has directed specific attention to fundamental questions.

In his remarks concerning the influence of the Basket Maker III house upon later structures, Dr. Roberts is on much firmer ground. He convincingly confirms the long-held belief that it is ancestral to the Pueblo kiva, by pointing out the subterranean position of both, the resemblance between the old entrance and the kiva ventilator, the common possession of the deflector, the central fireplace, the floor-hole or *sipapu*, etc. He argues that domestic ceremonies were connected with various features of the older house and that when natural architectural evolution or innovations brought about by the incoming Pueblos rendered living rooms unfit for such practices, they were transferred to specially built imitations of the former dwellings, thus producing the small family (clan) kiva of Pueblo times. The "great," probably community, kiva of later periods Dr. Roberts derives from the large village kiva of Basket Maker III, one example of which—it will be remembered, was found at Shabik'eschee.

I think there can be no question of the essential correctness of the above suppositions. E. H. Morris, Paul Martin, S. J. Guernsey, and the reviewer, all working independently, have arrived at similar conclusions. Many points of course remain to be made clear, Dr. Roberts, for example, remarks that the Pueblo kiva's roof of cribbed logs has apparently no prototype in earlier structures. But cribbing may have been practiced by Basket Maker III builders in areas not yet explored. What looks, indeed, like a primitive attempt in this direction was found by Mr. Nusbaum in a Basket Maker II cist in the Kanab district of south-central Utah. Identity in construction and in function at all points can hardly be expected; and in the matter of function I feel that Dr. Roberts tends to give too great ceremonial significance to those parts of the old dwelling which doubtless did become ceremonialized at a later time. I can hardly believe that so small a house would have been cluttered up with such features as the southeast compartment or the floor-hole unless they had possessed some practical value—and so I am inclined to be sceptical as to the suggestion that the former was laid off to segregate the women at times of ceremony, or that the Basket Maker III floor-hole, was, in those ancient days, a symbolical entrance to the underworld. But he does not insist upon these identifications and, as in the case of the suggested Asiatic origin of the house, the formulation of hypotheses is—at this stage of the game, all to the good in that it arouses criticism and leads to further research.

The minor antiquities of Shabik'eschee are accurately described and adequately illustrated. The village, unlike many Basket Maker III settlements, was not violently destroyed by fire—and its inhabitants naturally removed most of their be-

longings when they left. Hence a relatively small number of specimens came to light. Artifacts of bone and chipped stone are simple, grooved mauls occur but no axes, the metate is of the grooved type. Pottery is unslipped, culinary wares uncorrugated, the decoration of food-bowls strongly suggests basketry prototypes, an impermanent or fugitive red paint is often found on vessel exteriors. The site being an open one, no perishable objects were recovered, and were it not for the cave explorations of S. J. Guernsey, B. Cummings, and particularly of E. H. Morris, the remarkable achievements of the Late Basket Makers in basketry, sandal weaving, and wood working might well not be suspected. But a report by Guernsey is in press, one by Morris is in preparation, and in the not distant future we shall know Basket Maker III perhaps more intimately than any other single phase of the prehistoric Southwest.

The second paper, *Early Pueblo Ruins*, is of the same high quality as the first and exhibits, if possible, an increase in assurance of presentation and in ease of style. Of its admirable introduction I have already spoken. The body of the book is devoted to excavations in sites of the Pueblo I period on the Piedra river in southwestern Colorado, a sub-district of the Chaco archaeological province of the San Juan drainage. The Piedra country is peripheral both geographically and environmentally, for it lies on the extreme northeastern edge of the Southwestern field, and its resources both in water and in game are far richer than those of most parts of the Pueblo country. It was apparently not inhabited in Basket Maker III times, its remains running from very early Pueblo I through Pueblo III, with slight traces of temporary occupancy in later periods. As in so many other regions the first villages were small and widely scattered; the later ones larger, fewer, and, from the standpoint of defensibility, more advantageously placed; the latest (in this case the single Chimney Rock settlement) still larger and obviously sited to offer maximum protection against attack.

Dr. Roberts' excavations were confined to Pueblo I ruins, groups of 3 to 15 houses crescentically arranged about large, shallow depressions, each group possessing a refuse-heap cemetery. All these little communities had been destroyed by fire, hence many artifacts were recovered, as well as much clear evidence (in the form of charred beams and hardened adobe imprints,) as to the nature of the structures. The typical house of the oldest phase was a single rectangular room, built in a very shallow, unslabbed depression, with post-supported roof, and walls of poles which slanted slightly inward to the roof-frame, their lower ends being held in place by logs laid horizontally between the roof-posts and the sides of the excavation (a very clear restoration is given in fig. 4, p. 24). The entrance was a lateral doorway. The antechamber, passage, slab compartment, deflector, and *sipapu*, characteristic of the Basket Maker III Shabik'eschee site, were all absent, the only interior fitting being a rather amorphous firepit. The house of slightly later settlements (restoration in fig. 6, p. 37) was in a still shallower pit, and the roof-posts were incorporated in vertical walls formed of poles whose lower ends were simply embedded in the earth. The latest type of Pueblo I house was similar to the foregoing but was entirely above ground and was often accompanied by small two-room structures of crude masonry, apparently for storage.

The circular depressions in front of the little crescentic groups of houses are in origin borrow-pits for adobe used in construction, secondarily reservoirs, and occasionally the site of a kiva. Kivas, however, were not present at all the groups. The best example (restoration fig. 1, p. 44) was semi-subterranean, with a roof comparable to those of the Basket Maker III dwellings of Shabik'eschee. It possessed a ventilator shaft which communicated with the interior at floor level through two small holes, thus obviating the necessity of a draft-deflector between it and the firepit. No *sipapu* could be located, but an inclined passage gave communication with a near-by dwelling.

Burials were found in the rubbish heaps. The majority of the skulls were deformed occipitally, a few were of the undeformed Basket Maker type.

Dr. Roberts describes the architectural features revealed by his excavations with the same precision and clarity as in his earlier report. His method, partly stratigraphic, partly inferential, for ranking his three house-types in chronological sequence, seems thoroughly sound. He explains the paucity of kivas, and the simplicity of those which do occur, as due to the unsettled conditions which apparently resulted in the burning of so many villages. He thinks it possible that former Basket Maker III house-ceremonies may have held over, to so speak, in suspension, until the incoming Pueblo people had become culturally rooted, at which time the old features of construction necessary for the proper performance of such ceremonies were reincorporated in the kivas. In this, however, I believe he fails to take cognizance of the peripheral location of the Piedra country. In Shabik'eschee he argues most convincingly for the derivation of the Pueblo kiva from the Basket Maker III dwelling. But such derivation extending, as Dr. Roberts himself shows, even to details could hardly have taken place after any considerable period of disuse of the prototype, and I think it much more probable that the transition from dwelling to kiva occurred somewhere in the heart of the area, perhaps in the Chaco itself, or in the neighborhood of Johnson Cañon where Morris has found Pueblo I villages more highly developed than they were in the Piedra drainage. If this was the case the Piedra Pueblo I kivas might be considered as derived from the Basket Maker III communal kiva such as was found at Shabik'eschee. The Piedra culture, in spite of improvements in domestic architecture, seems to me distinctly to lag behind that of other Pueblo I groups, and this lag is particularly evident in the pottery.

Ceramically the Piedra ruins are very closely akin to Basket Maker III. Were it not for the presence of deformed skulls and of neck-coiling upon culinary vessels I doubt if anyone would have hesitated to rank the Piedra sites as belonging to the earlier period. Certain improvements are, however, pointed out. Vessel shapes are more exuberant, a true slip appears for the first time, and decoration, which at Shabik'eschee was confined to bowls, is extended to certain small-mouthed containers. In design, too, there are a few elements which resemble those of more westerly types of Pueblo I. But in spite of such advances, the Piedra pottery belongs essentially to the Basket Maker III category. This may mean that the Piedra culture represents a very early transitional phase of Pueblo I which later developed into the

sort of Pueblo I known further west. I think, however, that it may indicate a peripheral persistence in this remote region throughout the time that the main current of Pueblo I growth was going on elsewhere, the influence of the latter drifting back to the Piedra in the form of neck-banding and certain elements of design.

Dr. Roberts' papers are model archaeological reports. Clearly and concisely written, they contain in well-ordered form all the information he was able to derive from the sites, his findings are digested in the light of an intimate acquaintance with the literature and a firm grasp of problems, detailed and general, historic and cultural. And, in some ways most important of all, Dr. Roberts "pays as he goes." Of all Southwestern archaeologists he is the only one whose pen has kept abreast of his shovel, he alone is not overdug. If all of us had followed his admirable practice, the museums would, it is true, have fewer specimens, but we should know infinitely more than we do about what they mean, and many more ruins, in which we are now doing little more than pot-hunting, would be saved for the better equipped students of the future.

A. V. KIDDLER

PREHISTORY

La cultura del vaso campaniforme; su origen y extensión en Europa. ALBERTO DEL CASTILLO YURRITA. (Barcelona, 1928.)

The bell beaker, a tulip-shaped funerary vessel, from about six to nine inches tall, ornamented as a rule with incised and pointillé decoration arranged in horizontal bands, is the most important and chronologically valuable of the prehistoric wares from the early metal-using cultures of western and central Europe. The Iberian types and the British Bronze Age beakers so elaborately published by Abercromby have long been admired and recognized as valuable chronological criteria in their respective areas. Since closely related forms could be traced over a much wider region, the problem of the origin and diffusion of the bell beaker has attracted considerable attention, and this distinctive pottery form has in the course of time, suffered a number of putative births and traveled a whole series of hypothetical and mutually exclusive journeys, as from Egypt to the Atlantic (Montelius and Flinders Petrie), southward from a northern homeland accompanying Indo-Germanic hordes (Much), from Moravia to Brittany (Schlitz) and from Brittany to Moravia (Schumacher).

The view that the Iberian peninsula was the center in which the bell beaker form and ornament developed and from which it was diffused was first plausibly advocated by Hubert Schmidt in his *Zur Vorgeschichte Spaniens* (ZE, 238 sq., 1913). It has since been elaborated by Bosch Gimpera (see art. "Glockenbecherkultur" in Ebert's *Reallexikon der Vorgeschichte*) and others of the brilliant Catalan school to which Professor Castillo himself belongs. This volume considers the entire problem of the genesis and diffusion of the beaker on the basis of the stylistic variations which may be traced in the various groups, and the author is to

be congratulated on his extremely clear exposition, in which the relevant data at every point are available within the volume which contains over two hundred plates and two maps. Considering the various beaker-using cultures in a sequence of relatively unitary groups, he traces the evidences and problems of interrelation stage by stage so that his complicated history of diffusion and stylistic variation is nowhere vaguely allusive. The use of a series of diagrammatic figures in which the decorative motives of a series of representative specimens from each area may be readily compared, contributes considerably to the value of the work, for the elaboration and fusion of a variety of decorative styles is to be traced in the history of this ware as it passed from one region to another.

The earlier part of the volume is devoted to the development and expansion of the bell beaker in Iberia. Castillo has already in *La cerámica incisa* elaborated the view of his school that this ware developed in the Guadalquivir valley from the incised wares of the allegedly pre-megalithic cave culture of the Iberian plateau. This theory appears debatable in view of the uncertain chronology of the cave finds, the appearance of beaker sherds at Gerundia, an early Almerian site, and the wealth and variety in both form and ornament to be observed in the material from the central Portuguese megaliths and rock cut tombs. Although the bell beaker in its developed Iberian form is no Egyptian or East Mediterranean ware, is indeed an essentially individual and autochthonous product, it nevertheless remains entirely possible that external factors and ceramic traditions played a considerable part in the establishment of the bell beaker style. This problem has recently been discussed in this journal (32:32 sq., 1930).

The diffusion of the bell beaker through the Iberian peninsula is considered in detail and the earlier classification of Bosch Gimpera is elaborated into nine bell beaker provinces. The dominant criteria are appropriately stylistic, and the uncertainties are clearly indicated by the author. The interconnection between southern Portugal, the Guadalquivir valley, and Almeria is clearly indicated. From the Guadalquivir northwards into the middle Tagus region, and from Almeria up the west coast into Catalonia, where the influence of plateau styles is also to be observed, definite movements can be traced. The far northern beakers of the eastern Pyrenees, the Basque country, and Galicia are believed to derive mainly from the Almerian. Leeds' view of reflex movement from southern France is not considered, but the possibility of Portuguese influence in Galicia is not excluded. This expansion in Iberia coincides with the development of the first metal-using cultures in western Europe and it is to this association with the exploitation and trading of copper that Castillo attributes the vigorous dissemination of the bell beaker.

From Iberia, and especially Portugal, the bell beaker was carried up the Atlantic margin in the rich megalithic culture of Brittany. Curiously enough, the numerous beakers in the related megalithic tombs of the Channel islands are ignored. This is an unfortunate omission, for while the bell beaker has failed to appear in the megalithic tombs of the British Isles some of those usually considered as of Bronze Age date and Rhineland parentage may yet have to be derived from Brittany (cf. Childe, *The Danube in Prehistory*, 201, note 1) and the sherds from

Moytirra (Sligo, Ireland) which Castillo discusses with appropriate hesitancy, are undoubtedly Ibero-Breton rather than Britano-Rhenish in type.

In the megalithic cultures of southern France the bell beaker is found in the tombs of the earliest period. Castillo follows Bosch Gimpera in assuming a direct trans-Pyrenean relation with Iberia for both the megaliths and the beakers, but it is difficult to discount entirely the indications of Sardinian and Balearic influence in this area, and the beaker itself was undoubtedly carried eastwards into the western Mediterranean from Iberia. Indeed, it is the appearance of the bell beaker in the Villafrati culture of Sicily, datable to the second half of the third millennium which affords the first direct evidence of its chronological position.

The bell beakers of the middle Rhine constitute an interesting problem. Some are obviously in the Iberian style and to be derived most easily from southern France; in others the horizontal bands are decorated in panels (metopes) in the central European style; while still others, tall, angular, and relatively clumsy, show marked influence of the continental corded ware including plastic and cord impressed ornament. Their cultural context remains somewhat obscure, but "bracers" and copper daggers are typically associated with them and their makers appear to have merged with or succeeded the Michelsberg people who occupied hill forts in this region. Åberg, Bosch Gimpera, Schumacher, and others had regarded the Rhenish beakers as forerunners of the central European types and conceived of a movement eastwards from the Rhine. But since, as Childe has independently recognized (*The Danube in Prehistory*, 196), there are strong reasons both of style and of association for deriving the south German and Bohemian beakers from the Sardinian and North Italian, Castillo regards the Brenner route from north Italy, already suggested by Åberg and Childe, as dominant for all the central European groups.

In relation, then, to the central European groups the Rhenish appears to have received rather than contributed. The Saxo-Thuringian group, it is claimed, forms a stylistic unit derived from the southeast. It therefore follows that the mixed styles of the Rhenish beakers are to be explained by the meeting of eastern and southwestern beaker folk whereby beakers of Franco-Iberian type come into juxtaposition with those of Bohemian and Saxo-Thuringian style and also others, generally known as zoned beakers, which have been profoundly influenced by the continental corded ware.

The Rhenish beakers extending down into the Netherlands were themselves, as Abercromby demonstrated (*A Study of the Bronze Age Pottery of Great Britain and Ireland*, 1912), the ancestors of the forms introduced into England at a variety of points and associated with the beginnings of the British Bronze Age.

The history of the bell beaker therefore, as elucidated by Castillo, included a bifurcating diffusion from its origin center, the Iberian peninsula, and a later convergence of the two streams on the Rhine. Although he speaks throughout of the "*cultura campaniforme*" and shows the wide association of bracers and copper daggers (precise parallels to the broad flanged tang Ciempozuelos type can be

adduced in Bohemia) he does not pay any great attention to the wider cultural problems such as the early relation of the beaker to the megalithic tomb and the significance of their later divorce. If, moreover, as he very pertinently suggests, the wide diffusion of the bell beaker is associated with the development of an early traffic in copper there is little reason to expect that movements were entirely canalized into large streams and the problem of alternative routes may be over emphasized. The dual movement traced by Castillo is doubtless but a composite of a number of individually varying routes and connections, for as Childe has recently pointed out

The diffusion of bell beakers is due neither to a mass immigration nor to mere cultural borrowing. It results from the movements of small groups of people quite evidently guided by a taste for gold, amber, copper and kindred substances. Their acquisitiveness was partly satisfied by "trade." If some of them settled down in Moravia or the Rhineland that does not mean a total fixation. On the contrary they would have moved to and fro along the routes they had discovered and along others they were exploring. We must compare their activities to Arab traders in Africa rather than to the migrations of the Bantu (*op. cit.*, 196).

There is a French translation of the last chapter in which Castillo sums up his conclusions. The Spanish text is extremely lucid throughout

C. DARALL FORDE

Le Finistère préhistorique. BENARD LE PONTOIS. (Publications de l'Institut International d'Anthropologie, no. 3, 1929.)

This large volume, the third of a series of archaeological publications of the Institut International d'Anthropologie,¹ discusses the antiquities of Finistère. The term antiquities is used advisedly, for of systematic archaeology there is very little.

The author, the honorary curator of the Musée de Penmarc'h in Southern Finistère, has gathered in this volume the results of his excursions among the megalithic and later tombs of the region. He is interested in hypotheses of astronomical alignment of megalithic structures and in their relation to tide levels, but has added little to the work of Du Chatellier whose *Les Époques Préhistoriques et Gauloises dans le Finistère* (1907) remains the best connected account of the west Breton material and is the basis of this volume.

One is, however, grateful for the description of the St. Urnel necropolis, used from megalithic until Gaulish (late Iron Age) times; and for several plans of important tombs, hitherto entirely or in part unpublished, such as the Kernic gallery (fig. 169) which has relations with eastern and northeastern Breton forms, the Rosmeur tumulus (fig. 243) the construction of whose main chamber, however, still remains obscure, and of numerous Bronze Age dry-walled cists (figs. 228-232) whose sites are, unfortunately, not always given. The continuation of the menhir tradition into Bronze and Iron Age times is discussed and abundantly illustrated. The large distribution map is very clear and considerably more complete at certain points than those of Du Chatellier.

¹ Cf. *AMERICAN ANTHROPOLOGIST*, 31 155, 1929.

M. le Pontois does not confine himself to Finistère, however, but would consider the cultural relations implied in his material. Unfortunately, apart from a general scheme based on Déchelette, his main authorities appear to be Bertrand (whose inaccurate misleading and we thought forgotten, map of megalithic distributions in France is resuscitated in fig. 53) and Siret in his more pan-Phoenician moments. The work of Bosch Gimpera, Serra Rafols, and Poisson, to mention only that recently available in French, is ignored. A great deal of irrelevant material reminiscent of the personal descriptions and reflections of the nineteenth century collectors is included in the volume. There is little attempt to discuss seriously the distributional problems of megalithic types and the relation of the Finistère cultures to those of Morbihan in the megalithic and full Bronze Age periods.

The text is illustrated with a very large number of small photographic reproductions of monuments and cases of implements, but the quality of both the photographs and the reproductions is in general so inferior that one would willingly have sacrificed the majority of the illustrations for a few good half-tone or line drawings on a useful scale. The reproduction of implements is particularly defective. They have in general been mounted in large groups on cards which form a dark and obscuring background. An individual specimen may be even less than a centimeter in length on the plate (figs. 24, 34, 37) and the figures are often so blurred as to be completely worthless (cf. figs. 32, 38, 205).

It is regrettable that the labor and expense which went into the preparation of this volume could not have been directed to a more systematic comparative study of this important area, or that it was not avoided by the publication of a brief pamphlet embodying the objective results of M. Pontois and his colleagues. It is strange that the late Dr. Capitan could yet write of it in the preface.

Rien de plus difficile, mais aussi de plus agréable, que de présenter un livre et son auteur, surtout, quand le livre est plein d'idées neuves et de faits inédits, comme celui-ci, moderne dans ses méthodes, précis dans sa documentation surabondante, basé sur des faits rigoureusement exactes.

C. DARYLL FORDE

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DISCUSSION AND CORRESPONDENCE

TOBACCO IN NEW GUINEA

In his recent paper¹ in the *American Anthropologist* on the above subject Dr. E. D. Merrill brings forward some welcome new facts relative to tobacco from New Guinea, especially regarding that raised from seed by Dr. T. H. Goodspeed. The distribution of native-grown tobacco in New Guinea and some neighboring islands, as found by modern explorers, is peculiar and difficult to explain provided all this tobacco owes its origin to America. This has led a number of persons to suggest that there might be some species indigenous to this area from which the native tobacco could have been derived. Some writers are even more emphatic. Krieger² says, "Tabak ist ohne Zweifel eine auf Neu-Guinea einheimische Pflanze." Few, however, went further than to suggest the possibility or probability of an indigenous species. Sir William McGregor, the most noted of New Guinea governors, regarded this as probable. Mr. C. A. W. Mockton, speaking of finding tobacco plants on the summit of the Wharton Chain, over 9,000 feet high, says,³

Here, tobacco plants were in evidence, remarkable for the length and fineness of the leaves and peculiar fragrance, but whether indigenous or grown from seed dropped by natives I do not know—I incline to the former view.

All these were mere opinions, however, held as more or less probable from the evidence at hand, but recognizing that only the botanists could decide the problem. The general facts, so far as known, regarding the cultivating and use of tobacco by the natives, were brought out in my previous paper.⁴ It did not seem unreasonable, in view of these facts, to make the final statement that they "seem to point to an ancient use of an indigenous New Guinea species of tobacco probably closely related to the Australian species," particularly as native species have been reported from neighboring regions. Engler and Prantl,⁵ for example, under *Nicotiana*, list, among others, the following species: "3 Arten auf den Sundainseln, 1 Art (*N. suaveolens* Lindl.) in Australien, einige endemische Arten auf den Inseln des Stillen Oceans, z. B., *N. fragrans* Hook. auf den Norfolk Inseln." Even if the others are now discredited, the validity of a separate Australian species is still recognized.

Dr. Merrill begins his paper as follows:

The myth that is more or less prevalent among some ethnologists, but not among botanists, to the effect that tobacco was known to and used by the natives of New Guinea previous to the arrival of Europeans in Malaysia, apparently originated with Dr. O. Finsch

¹ E. D. Merrill, Tobacco in New Guinea. *AA*, 32, 101-105, 1930.

² Maximilian Krieger, *Neu-Guinea* (Berlin), p. 215, 1899.

³ C. A. W. Mockton, *Last Days in New Guinea* (London and New York), p. 46, 1922.

⁴ A. B. Lewis, Use of Tobacco in New Guinea and Neighboring Regions, *Field Museum, Anthropology Leaflet* 17, 1924.

⁵ Engler and Prantl, *Die natürlichen Pflanzenfamilien*. IV, 3 b, p. 32.

In support of this supposition he quotes a long passage relating to tobacco and tobacco-pipes from Dr. Finsch, and lays especial emphasis on the following sentence: Die Tabakspflanze ist ohne Zweifel auch an dieser Kuste Neu-Guineas eigenthumlich, und ihre Cultur wurde langst vor Ankunft der Europaer in der Weise betrieben, wie ich dies noch bei den Koiari im Innern und anderwärts an der Kuste sah.

Commenting on this he says,

Doctor Finsch's direct statement regarding tobacco in New Guinea previous to the arrival of the Europeans appears to me to be merely an expression of personal opinion, and is not supported by any corroborative evidence (p. 10).

It appears to me that Dr. Merrill has misinterpreted Dr. Finsch's meaning, and has taken a part for the whole. Dr. Finsch definitely says "an dieser Kuste Neu-Guineas," and the quotation is taken from that section of Dr. Finsch's paper⁶ dealing solely with the southeast coast of British New Guinea. With this limitation, set by Dr. Finsch himself, corroborative evidence comes from practically every explorer in that territory.

This, of course, refers to its use in modern times, which even Dr. Merrill admits. The real problem, also stated by Dr. Merrill, is whether American tobacco could have come into New Guinea in early times by way of the Moluccas through Malay (or Chinese?) traders. There was considerable intercourse between the Moluccas and western New Guinea, especially the northwestern part. The sultans of Tidore claimed much of western New Guinea as part of their domain, which claim was passed on to the Dutch when they took over the Tidoran territories. That tobacco was introduced into New Guinea in some such way as this, and then spread over most of the island through native dissemination, has been so generally assumed, even by ethnologists, that I neglected, I am now sorry to confess, to mention it in my paper in connection with the other hypothesis. For example, Dr. H. A. Lorentz,⁷ in his book on the Dutch Expedition to the "Snowmountains" in 1909, says, in speaking of the tobacco raised by the Pesegem of the interior mountains,

Aanraking moet er dus plaats hebben gehad, hetzij met noordkust, hetzij met zuidkust bewoners, daar de tabakspiant op Nieuw-Guinea geen inheemsche plant is.

Mr. Lorentz may have evidence for this positive statement, but he does not mention it, so far as I have been able to discover.

That Dr. Finsch was the originator of the "myth" which Dr. Merrill has discovered certainly never occurred to me. I would rather suppose the contrary from the following statement:⁸

Die fruher von mir von der Sudkuste mitgebrachten Herbarproben zeigten die Identitat der von den Papuas kultivierten Pflanze mit dem gewohnlichen Bauerntabak (*Nicotiana glauca*), mit dem sie in Aussehen wie Blute durchaus ubereinstimmt.

⁶ Ethnologische Erfahrungen und Belegstucke aus der Sudsee, Zweite Abtheilung, Neu-Guinea I, English-Neu-Guinea, a Sudostkuste. Annalen des k. k. naturhistorischen Hof-museums, Bd. 3, Heft 4, 327, 1888.

⁷ H. A. Lorentz, Zwarte Menschen (Witte Bergen (Leiden)), p. 39, 1913.

⁸ Otto Finsch, Samoafahrten (Leipzig), p. 58, 1888.

The aim of my paper was to gather together, so far as I could, the facts relating to the use of tobacco. The whole paper is concerned in describing these facts, with the exception of the last sentence and parts of two others. That they are not documented is due to the popular character of the series in which the paper appears. The "general purport" of the paper was not to support any theory, but purely descriptive. Only in the last sentence did I venture a theoretical proposition, that "the facts seem to point," etc. This, to Dr. Merrill, "does not seem to be warranted" yet he himself is kind enough to say:

The arguments ['] appear at first glance to be *rather conclusive* [italics mine] except that apparently the author is theorizing with almost no botanical evidence to support his conclusions.

Apparently the facts *argue* for that particular conclusion!

As to botanical evidence I hunted high and low for it with small results, even in New Guinea, where I was unable to find a single growing plant, and the few packages of native trade tobacco which I did obtain were unfortunately discovered by some of my boys before I could get them safely packed away, and went up in smoke. Later a few leaves were discovered in a bamboo tube, and through Dr. Laufer submitted to Dr. C. F. Millspaugh, at that time Curator of Botany in Field Museum, who reported on them as follows:

It is not possible to determine the species of the Nicotianae from the leaves alone. The distinctive characters lie in the calyx and the corolla, and especially the seed. However, I judge that the species you submit from Guinea is *Nicotiana suaveolens* of Lehmann *Generis Nicotianarum Historia, Pars Botanica* (Hamburg), 1818, p. 43; n. 18. My opinion that the species is *N. suaveolens* is based mostly on the fact that that is the prevailing species cultivated in Africa (south) and on the islands adjacent. The leaf characters of the specimen submitted are those of the species so far as their characters in the specimen reveal.

Against this there was the statement of Dr. Finsch as quoted above; but on the other hand there was that of Mr. Maiden⁹ referred to in my paper (p. 8) in which he says:

The presence of a longish petiole at once excludes this tobacco from *N. tabacum*, and of all the species described by Asa Gray it certainly comes nearest to *N. rustica*. It is not very remote (I speak of the foliage alone) from our *N. suaveolens*.

So Finsch reports it as one species, and Millspaugh and Maiden say it is not that but resembles *N. suaveolens*. Even if Dr. Merrill does not believe in these statements, still they come from botanists, so the hypothesis is not without some botanical support.

The Dutch expeditions of recent years have apparently found what they regard as *N. tabacum* in the Dutch territory. Dr. Wichmann reports¹⁰ finding this on Lake Sentani, and Dr. Lorentz implies it in his statement quoted above. This did not seem to me conclusive evidence for the whole of New Guinea, however.

⁹ Proceedings of the Linnean Society of New South Wales, ser. 2, 2: 463, 1887.

¹⁰ Arthur Wichmann, *Nova Guinea*, vol. 4, Bericht über eine im Jahre 1903 ausgeführte Reise nach Neu-Guinea (Leiden), p. 187, 1917.

In addition to my final sentence, Dr. Merrill quotes (p. 102) two other sentences with evident disapproval. One is merely the statement of a native tradition, and is a fact to be considered, whatever weight be ascribed to it. The other relates to Australia and is as follows:

The natives . . . utilized their own tobacco long before the trader's tobacco became known to them.

The native use of *N. suaveolens* is described in my paper (p. 8), but as it is questioned by Dr. Merrill, I shall give here a few references and quotations. In the reports of the Scientific Results of the Elder Exploring Expedition, the naturalist, Mr. Richard Helms, says,¹¹

To find that the natives of the Everard Range and Blyth Range tribes use tobacco was a surprise to me. . . . Whilst these tribes have discovered the stimulating properties of *Nicotiana suaveolens*, they do not seem to know the more powerful narcotic of "pituri," *Duboisia Hopwoodii*.

The same use of native tobacco by the aborigines of this region is reported by Mr S. A. White in Scientific Notes on an Expedition into the Northwestern Regions of South Australia.¹²

On its use in Central Australia Dr. E. C. Stirling, under "Plants used for Other Purposes than for Food" writes as follows:¹³

NICOTIANA SUAVEOLENS. "Native tobacco." For human use the place of "Pitchuri" is taken by the above named plant. Growing freely in many places the chewing of its leaves and stems is a general practice amongst both the Arunta and Luritcha tribes. Though in several instances I saw portions of the dried plant used in their natural condition, the proper method of preparation, for which I am partly indebted to Mr. Gillen, is as follows: The variety preferred is that growing on the tops of stony ranges; of this the leaves and stems are dried in the sun. These are then ground into powder, which is mixed with an equal quantity of the white ash of the leaves and fine twigs of *Cassia eremophila* if available, if not, of those parts of some other bush, and the mass is made into a bolus of suitable size with saliva. This is chewed and passed from mouth to mouth, a bolus lasting about twenty-four hours. When not in use it is carried behind the ear or in the head or arm band. The lubras are allowed to chew the plant only in the natural state. Mr. Gillen informs me that the plant is used as a trade article as far north as Tennant's Creek.

The use of both native tobacco and pitchuri is described with considerable detail by Dr. Eylmann.¹⁴ According to him, the geographical distribution of *N. suaveolens* is much more limited than that of *Duboisia*. Its use is therefore restricted.

Der native tobacco findet hauptsächlich dort Verwendung, wo er wächst, doch gelangt er als Tauschware auch zu nördlichen und südlicher wohnenden Stämmen.

¹¹ Transactions of the Royal Society of South Australia, 16: 248, 1892-1896.

¹² Transactions of the Royal Society of South Australia, 39: 727, 1915.

¹³ Report on the Work of the Horn Scientific Expedition to Central Australia. Anthropology, 4: 61-62, 1896 (edited by Baldwin Spencer).

¹⁴ Erhard Eylmann, Die Eingeborenen der Kolonie Südaustralien (Berlin), 305-307, 1904.

The method of using the two plants is the same. Speaking of pitchuri, he says, Die Zubereitung der Prieme gleicht ganz der aus Tabak: zunächst erwärmt man die zerkauten Blätter und vermenget sie dann mit Akazienasche

Although Dr. Hartwich¹⁵ regards the New Guinea tobacco as of American origin, of Australia he says:

Australien muss uns dabei von grösstem Interesse sein, weil es derjenige Erdteil ist, in welchem die Menschen vor Ankunft der Europäer zweifellos Tabak benutzten und zwar einheimischen, der also nicht auf irgendeine Weise von America gekommen war.

And yet Dr. Merrill, apparently basing his statement solely on an opinion of Professor A. R. Radcliffe Brown, says categorically that "the aborigines in Australia made no use of the Australian native *Nicotiana*," and he uses this "fact," as he calls it, to help prove how highly improbable a local discovery of smoking in New Guinea would be!

The somewhat polemic character of the discussion so far is because it seems to me that Dr. Merrill has not correctly represented either my own paper or the problem as a whole. Any new evidence is welcomed by no one more than by myself. The question is not yet decided, however. There are too many unknown regions and unidentified tobacco plants in New Guinea, New Britain, and Bougainville, and the difficulties of cultural diffusion too great, to admit of guesswork. It is the calm assumption by nearly every one, including the ethnologists, that all cultivated tobacco must have come from America, that prevents the acquiring of real evidence. Dr. Merrill's paper is an illustration of this.

If the cultivation and use of tobacco does owe its origin to America, its spread, as shown in New Guinea and the other islands, is a remarkable case of cultural diffusion, and more interesting and important to the ethnologist than the other supposition. If one cultural element can pass independently from tribe to tribe, from culture area to culture area, through or over sharp cultural boundaries, and across many almost isolated regions, and all in two or three hundred years, what mixtures may not have arisen in the past centuries, and why worry about the migration of peoples when cultural elements are so independently migratory?

ALBERT B. LEWIS

TOBACCO IN NEW GUINEA: AN EPILOGUE

As Dr. Lewis' contribution to the use of tobacco in New Guinea is one of six leaflets prepared by various members of the Museum staff under my direction and edited by me in the Field Museum series of Anthropology Leaflets (15-19 and 29), I may be allowed to add a few remarks to my colleague's rejoinder to Dr. Merrill. No one who has read these six leaflets will accuse me or even suspect me of being an anti-American heretic, for I have strictly upheld and, I venture to hope, have also proved the introduction of both *Nicotiana tabacum* and *N. rustica* from America into Asia, Europe, and Africa. In regard to Melanesia and Australia, however, I

¹⁵ C. Hartwich, *Die menschlichen Genussmittel* (Leipzig), p. 117, 1911.

believe the situation is somewhat different, and this despite Dr. Merrill's criticism, which is not convincing to me. Dr. Merrill is well known as an eminent botanist from whose writings I have learned a great deal, especially with reference to the cultivated plants of the Philippines, a subject in which he is an undisputed authority. The "ethnological myth" invented by Dr. Merrill has been refuted above by Lewis. The botanical data of Engler-Prantl to which he refers, combined with a statement of A. de Candolle (Origin of Cultivated Plants, p. 142), who records two native species, *Nicotiana suaveolens* for New Holland and *N. fragrans* for the Isle of Pines near New Caledonia and who states that these two are foreign to America, were sufficient botanical evidence to an ethnologist for assuming a native *Nicotiana* species in Melanesia and Australia.

Dr. Merrill states from hearsay that *N. tabacum* occurs in New Guinea. I should be the last to doubt it, its non-occurrence there would be next to a miracle. This fact, however, does not disprove that a native species might not occur there. Dr. Merrill's informants have assuredly not explored the entire length and breadth of New Guinea.

Tobacco was known in New Guinea at least in the beginning of the seventeenth century, for it is mentioned by Jacob Le Maire, who sailed along the coasts of the island in the year 1616 (Australian Navigations, ed. by De Villiers, pp. 223, 226). On the 23rd of July of that year Le Maire, when he was a short distance from the land, reports that he was followed by six big canoes of natives bringing dried fish, coconuts, bananas, tobacco, and small fruit-like plums. The date in question is rather early and almost coincides with the first introduction of the tobacco plant or plants into Japan, China, Java, India, and Persia. Le Maire's notice, of course, is inconclusive as to whether the tobacco to which he alludes was imported or indigenous. Dr. Merrill's supposition that tobacco was introduced into New Guinea from Amboina is purely subjective and does not constitute historical evidence. I have written a very detailed history of the American cultivated plants in their distribution over the Old World mainly for the purpose of doing away with all the wild guesswork and speculation from which this subject has hitherto suffered, and replacing it with facts based upon documentary evidence; it will be seen that many of the guesses made, especially with reference to Spanish and Portuguese agency, are wrong and that the transmission of American plants was frequently effected through quite different channels.

The worst of Dr. Merrill's guesses is his suggestion that "the type of pipe and method of smoking tobacco in New Guinea is merely an adaptation of the pipe and opium smoking." In the first place, there is not a ghost of resemblance or affinity between the New Guinea method of tobacco smoking and opium smoking. In the second place, this alleged interaction is historically impossible, for opium smoking sprang up as a sequel of tobacco smoking only in the beginning of the eighteenth century, when the opium-pipe was first invented by Chinese in Formosa (see our Leaflet 18, pp. 23-24). In other words, opium-pipe and opium smoking are rather recent events, hardly two hundred years old, while the peculiar method of smoking tobacco in New Guinea from tubes in which the smoke is stored must be

many centuries old. This method does not occur anywhere in America, Asia, Africa, or Europe; it is unique and peculiar to and characteristic of New Guinea, and must therefore have originated in New Guinea.

Chinese contacts with New Guinea are not of ancient date, as supposed by Dr. Merrill. New Guinea is not even mentioned in any Chinese records, nor do early Chinese contacts in the Philippines, as Dr. Merrill boldly asserts, antedate or at least approximate the beginnings of the Christian era. Chinese trade with a few of the Philippine islands was established from the tenth to the thirteenth century, but closer relations and foundations of Chinese trading posts in the islands are not earlier than the end of the fourteenth and the fifteenth century.

BERTHOLD LAUFER

RECENT DISCOVERIES OF FOSSIL HUMAN REMAINS

Through the courtesy of Mr. Henry Field, we are able to publish the following note, quoted from a letter written by Professor Wilhelm Freudenberg regarding his recent discoveries near Heidelberg.

"I may tell you that Professor Boule in Paris suggested that part of my fossils from Bammenthal belong to *Homo heidelbergensis*, while the other fossils, which I named *Hemianthropus osborni*, suggested to him some resemblances to *Homo sapiens* and not to the anthropoids. The jugal bone resembles cynocephalid forms in the direction of the squamose processes, while the cheek part is truly human but very convex. This may be a transitional form in some respects, like *Eoanthropus dawsoni*, which is also suggested by the very short diaphysis of the femur, which resembles that of a chimpanzee. A new genus occurs with *Elephas trogontheri*, the steppe elephant. *Homo heidelbergensis*, however, is found with *Elephas antiquus*, the woodland elephant. The former may, on the other hand, be a relation to *Pithecanthropus* and *Sinanthropus*, which is proved apparently by the very large brain case, of which a fragment has been found, together with an isolated part of the orbits, which are very large and round, and in this respect similar to the African anthropoids. The jugal bone combined with the orbits is of a different type compared to that of *Hemianthropus*.

"While with Professor Sir Arthur Keith, F. R. S., it was stated in the Royal College of Surgeons that the gorilla is not present at Bammenthal or Mauer, as the cancellae on the side part of the supraorbital ridge are present in the fossil *Homo heidelbergensis* or related form but not in the gorilla. They are present in *Sinanthropus*, as I saw in photographs sent to Professor G. Elliot Smith of London by Professor Davidson Black of Peking. This information throws a new light on the earliest history of mankind."

ANTHROPOLOGICAL NOTES AND NEWS

CODEx VINDOBONENSIS MEXIC. I.

When Walter Lehmann undertook the grouping of the Mexican hieroglyphic manuscripts, in particular of those of the Mixteko-Zapotekic group, in the *Journal de la Société des Américanistes de Paris* (pp. 421 ff.) in 1905, putting the Codex Vindobonensis Mexic. I at the head of group II, "Les peintures Zapotèques," next to its nearest kindred, the Codex Nuttall at the British Museum, he did not fail to add the wish which often had been repeated before and after him: "Espérons, qu'une reproduction comparable à celle que nous devons à la générosité du duc de Loubat, rendra bientôt accessible au public intéressé ce précieux document!"

The authorities of the former Imperial Library at Vienna had indeed intended to reproduce at last in facsimiles this codex, which had been appreciated by them as well as by all scholars as a special cimelium in the series of cimeliums of the "Monumenta Palaeographica Vindobonensia," opened in 1910. This plan was, however, rather put back by the hard war and postwar times. But already in 1925, the art-establishment of Max Jaffé at Vienna undertook, in conjunction with the authorities of the National Library, to publish perfectly faithful facsimiles of the Codex Vindobonensis, without any support on the part of a Maecenas on so great a scale, as the Duke of Loubat was, and in spite of the bad conditions which were much more unfavorable than those of pre-war times. They did it with the intention of making the acquaintance with one of the most important monuments of Ancient Mexican culture possible to all students of this province, and of thus giving important support to the difficult task of deciphering these rare remnants of the culture of the American Middle-Ages, or, to be more exact, Antiquity—last not least in the expectation of finding due understanding for their enterprise in the circles interested in it.

The Codex Vindobonensis is given a particular charm by its marvellous adventures, which, in themselves, prove the high degree of appreciation it met with through all the periods of its existence. Brought to Europe in 1519 as a gift to the Emperor Charles V from Cortez, the manuscript passed through the collections of famous princes and well known bibliophiles, finding at last a permanent home and extraordinary appreciation in the Imperial Library in the seventies of the 17th century.

Seler thought its home to have been in the country of the Totonaks, a question still waiting for conclusive examination and strict delimitation. In spite of the peculiarities it owns, which are characteristic of all similar manuscripts of this group, it also shows some more or less loose relations to the Mixteko-Zapotekic hieroglyphs, to the Seldenmanuscripts of the Bodleian Library at Oxford, to the manuscripts of the Cuicatekic group (according to Lehmann) represented by the codices "Porfirio Diaz" and "Fernandez Leal"; even the manuscripts of the Codex Borgia group may be brought in connexion with it, although they differ

in certain respects, when compared to the group of the *Codex Vindobonensis* with its complicated astronomic balancing-accounts and other peculiarities of this kind.

The analysis of all the single elements of these connexions, the yet unsolved problem concerning the contents of the *Codex Vindobonensis Mexic. I*, which, according to the examinations made up to the present, has to pass for a merely astronomical one, and the commentation upon the manuscript, as well as the tables which are intended to facilitate the deciphering, are offered in concise form by Walter Lehmann's preface.

ARCHAEOLOGICAL SURVEY OF EASTERN COLORADO

Under the auspices of the Smithsonian Institution of Washington, the University of Denver, and the Colorado Museum of Natural History, the first archaeological survey of Eastern Colorado was undertaken last summer. The staff comprised Dr. E. B. Renaud, Professor of Anthropology, as Director, Paul Beaubien, as chief assistant, Dale King, Rex Long, and Charles Steen, as field assistants (all graduates, excepting the latter, a senior, in anthropology from the University of Denver). The whole staff was actively engaged in field work from June 6 to August 15th, or ten weeks, and since then the Director has taken several trips to finish up the work. The territory covered extends from the Rockies in the west to the Kansas line in the east and from Nebraska and Wyoming in the north to the Oklahoma and New Mexico borders in the south, thus connecting with the work done last summer by Dr. Renaud in the Cimarron valley. The expedition covered over 10000 miles, recorded more than 250 Indian sites, and collected about 1000 pounds of flaked stone artifacts without counting bulkier metates, manos, and pounders. This material will be studied during the fall and winter months and a report of the results of this survey will be published later by the University of Denver, together with an archaeological map of Eastern Colorado. A study will be made of the types of artifacts and of their distribution as well as of the materials employed in their making. Thus it appears already that petrified wood from the Black Forest was mostly used in the central highlands of the region, quartzite of a variety of colors in two centers of frequency, one the s. e. corner of Colorado, near Oklahoma, and the other in the s. w. districts near Wyoming, while flint was more common in the north and a black, slaty material was generally employed in most of the s. w. portion of the area. A special chapter will be devoted to the pictographs seen on the boulders and cliffs of the southern canyons and western foothills.

This survey is, by necessity, somewhat sketchy, as the territory to be visited was enormous for such a small staff and a short time. However, it may contribute some valuable knowledge as it is pioneer work in that field. The archaeological survey of Eastern Colorado will connect on the one hand with other surveys undertaken from Nebraska eastward and on the other hand with those of New Mexico and Arizona in the Southwest, and this may add to its significance and usefulness.

IDENTIFICATION OF BOTANICAL MATERIAL FROM EXCAVATIONS

The National Research Council Committee on State Archaeological Surveys has arranged with the Museum of Anthropology at the University of Michigan for the establishment of a clearing house and identification center for botanical specimens discovered in the course of archaeological excavations. This service has been made possible through the cooperation of Dr. Melvin R. Gilmore, a specialist in ethno-botany, who is Curator of the Division of Ethnology.

If you have any such specimens, please send them, together with the necessary data, to Dr. Gilmore, who will be glad to identify them as completely as possible for you. We hope that if there are duplicate specimens, Dr. Gilmore may be permitted to keep one or more of them for his files. Of course no publication rights are involved.

Sincerely yours,

CARL E. GUTHF
Chairman

MANDAN EARTH LODGE TO BE REPRODUCED

The State Historical Society of North Dakota, with the cooperation of the state authorities, has started work on a reproduction of a Mandan earth lodge in the state capitol grounds at Bismarck. According to the North Dakota Historical Quarterly for April it will be about 45 feet in diameter and built according to the description and pictures of early travelers in the northwest, with Indians from the Fort Berthold reservation superintending the work.

* * * * *

THE McDONALD-WARREN FOUNDATION expedition, headed by George R. Fox, has unearthed the skeleton of an Indian chief of 500 to 1000 years ago, along with bear-tooth and shell necklaces, and arrowheads. The find was made on La Cloche island, Georgian bay, Ontario. The material will go to the Edward K. Warren Foundation at Three Oaks, Michigan.

AN EXPEDITION led by Charles L. Bernheimer in 1930 uncovered mummies, skeletons, tools, and implements of the Basket-Maker culture in Arizona. The outstanding find was a boomerang closely resembling the boomerangs of Australia. Mr. Bernheimer represented the American Museum of Natural History, the Smithsonian Institution, and the Carnegie Institute.

EVIDENCES of iron smelting have been discovered in strata of the "palaeolithic" age in a cavern at Mumbwa, Northern Rhodesia, by an Italian expedition.

FRANK SETZLER has joined the staff of the U. S. National Museum as assistant curator of American archaeology. Mr. Setzler is a graduate of the University of Chicago. He has been associated with the field explorations of the Ohio State Museum and was for three years in charge of the Indiana archaeological survey.

NEIL M. JUDD has been put in charge of the new division of archaeology of the U. S. National Museum, as curator. The new division is made up of the former divisions of American archaeology and Old World archaeology.

THE UNIVERSITY OF PENNSYLVANIA Museum and the American School of Oriental Research at Bagdad are planning a joint expedition to begin work in November at the mound Tell Billa, fifteen miles northeast of Mosul in Northeastern Mesopotamia. Ephraim A. Speiser, assistant professor of Semitics at the University of Pennsylvania, will head the expedition. The staff will include C. S. Fisher, S. N. Kramer, and A. H. Detweiler.

ALONZO W. POND, Mrs. Pond, and George L. Waite, returned to the United States July 3, after three months' work in the northern Sahara desert. The expedition (Beloit College-Logan expedition) uncovered about thirty skeletons, mostly fragmentary. Flint and bone implements and charcoal were also collected.

THE UNIVERSITY OF PENNSYLVANIA MUSEUM has been granted permission by the Guatemala government to excavate the ruins of Piedras Negras, a deserted city of the Mayas in northwestern Guatemala.

DR. FRANZ BOAS, professor of anthropology at Columbia University, has been elected an honorary member of the Wurzburg Geographical Society.

DR. KIMBALL YOUNG and Dr. Ralph Linton, formerly associate professors of sociology and social anthropology, respectively, at the University of Wisconsin, have been promoted to full professorships.

HARLAN I. SMITH of the National Museum of Canada, was awarded the honorary degree of master of arts at the University of Michigan commencement in June.

THE MUSEUM OF NEW MEXICO has adopted plans this year for the establishment of branches at Mexico City and San Diego, California.

C. WELLINGTON FURLONG has returned from Africa with ethnological records of pygmy tribes, relics of the Stanley and Livingstone expeditions, photographs, and motion pictures. His expedition visited Kenya, Tanganyika, Uganda, Sudan and the Belgian Congo, giving especial attention to the study of the pygmies of the Ituri forests.

HERBERT SPENCER DICKEY, who returned from an expedition to the headquarters of the Orinoco, plans another expedition to the same region in February. The expedition just returned, brought back ethnological material from the land of the Guaharibos Indians, geographical data, and collections of birds and mammals.

made by Mrs. Dickey in the vicinity of the Casiguari Canal. The Museum of the American Indian, Heye Foundation, is promoting the work.

ALES HRDICKA of the Smithsonian Institution brought back from the Kuskokwim River region of Alaska, last summer, fifty cases of anthropological material. He discovered Eskimos living there that are believed to be almost identical with the ancestral type that came to Alaska from Siberia.

FOSSILS of *Sinanthropus*, the so-called "Peking Man," found near Peiping within the past year will provide the most valuable clue yet unearthed for solving the riddle of early man, was the prediction of Professor G. Elliot Smith, noted British anthropologist, in a recent lecture before the Chinese Geological Society. Professor Smith was in Peiping at the invitation of the Chinese Government for the purpose of studying the *Sinanthropus* specimens, including the skull of the Peking man found last year and a second skull recently discovered. Although the report on the cast of the brain case obtained from the second skull is not complete, Professor Smith described the discoveries as unique in the whole history of anthropology and predicted that the evidence would throw a flood of light on the nature of the primitive brain.

PORTIONS of a second skull of "Peking Man" have been found in material taken from the caves at Choukoutien. This second skull, though fragmentary, supplies data on certain parts not represented in the first skull. The announcement of the find was made by Dr. Davidson Black.

THE MYRON I. GRANGER expedition of the American Museum of Natural History, headed by Morton C. Kahn, has returned from Dutch and French Guiana. The party consisted of Dr. and Mrs. Kahn and J. Blake Eggen. They visited the Boni, Paramacca, and Aucaner tribes and brought back specimens of wood carving, religious objects, and other artifacts.

MATTHEW W. STERLING of the Bureau of American Ethnology has reported finding this summer, in eastern Texas, caves bearing traces of human occupation in prehistoric times. Exploration of these caves may help explain how the Mound Builder culture found its way to the Mississippi valley from the Southwest.

AN EXPEDITION from the Museum of Northern Arizona, headed by Harold S. Colton, has discovered near Flagstaff, Basket-Maker and first stage Pueblo culture sites that bear evidence of having been buried under black volcanic ash from an eruption of Sunset Crater. A third site, second-stage Pueblo, near-by, shows no trace of the volcanic ash.

ON his return to Stockholm from China, in the spring of 1931, where he has been making explorations in Tibet and Mongolia, Dr. Sven Hedin will be presented with the first "Hedin Medal" by the Swedish Anthropological and Geographical Society.

TWELVE skeletons of the third Algonkian period have been uncovered by a Rochester Museum expedition under Arthur C. Parker at the Clark farm at Willow Point, near Binghamton, New York. During Dr. Parker's absence from the site to examine other sites in the county, skeletons uncovered by the expedition were disturbed and some bones stolen. This vandalism prevented the taking of photographs of the material in place.

THE CARLSBERG FOUNDATION of Science (Copenhagen) is sending an expedition under Harold Ingholt of the Carlsberg Glyptothek to excavate the old city mound at Hama in Syria where the first Hittite hieroglyphics were found. Dr. Ingholt will have the cooperation of Henry Seyrig, French director of antiquities.

DR. MAURICE G. SMITH of the University of Oklahoma, Norman, died on October 22, 1930, after a short siege of typhoid fever.

IN THE ABSENCE of Professor A. G. Keller, who is in Europe on sabbatical leave, Professor Maurice R. Davis is acting head of the department of anthropology and sociology at Yale. His recent book on *The Evolution of War* is being translated into French. Professor George Peter Murdock's *Culture History*, a critical translation of Julius Lippert's *Kulturgeschichte*, will be published soon by The Macmillan Company. This house will also publish, at a later date, a text he is preparing in ethnography, entitled *Our Primitive Contemporaries*. Professor James G. Leyburn is publishing through the Yale University Press a *Handbook of Ethnography*, which consists of a listing of some 12,000 tribes, clans and other social divisions, with their locations and other descriptive material and with accompanying maps.

AT THE INTERNATIONAL Congress of Popular Arts, held in Antwerp, August 28 to September 7, a paper by Miss Frances Densmore was read on "The Music of the American Indians at Public Gatherings." It was the only paper from the United States on the program. It was read by Miss Elizabeth Burchenal, President of the American Folk Dance Society (the United States section of the International Congress in Folk Arts sponsored by the League of Nations, and of which Miss Densmore is a member) and summarized in French by the official interpreter.

WARREN K. MOORHEAD of Phillips Academy, Andover, Massachusetts, has announced the results of an archaeological expedition in the Merrimack valley, Massachusetts and New Hampshire. The expedition unearthed 110 Indian sites. Only three skeletons—none of which could be preserved—were found. Artifacts brought to light revealed that the art of the Merrimack Valley Indians was of a rather low order.

THE JOINT EXPEDITION of Peabody Museum of Cambridge, Massachusetts, and the University of Pennsylvania Museum to Central Europe, under the direction of Vladimir J. Fewkes, has made important finds at Harovice, Homolka, and Chrastany, near Prague. These include pottery, bronze ear-rings, bracelets, iron knives and arrowheads belonging to a culture more than 5000 years old.

RONALD L. OLSON, assistant curator of South American Archaeology at the American Museum of Natural History, has returned from a seven months' excavating trip in Peru and Ecuador with important additions to the museum's collections. The expedition was financed by Myron I. Granger.

THE OTAGO UNIVERSITY Museum at Dunedin has a new two-story wing with 120 feet by 60 feet of floor space in each story. This wing will house the ethnographic collections.

PROFESSOR A. R. RADCLIFFE-BROWN, of the University of Sydney, Australia, will be in residence at the University of Chicago during the academic year beginning October 1931.

DR. W. D. STRONG is leaving the University of Nebraska to take a position as Senior Ethnologist at the Bureau of American Ethnology, Washington, D. C.

DR. L. J. FRACHENBERG died in the latter part of 1930.

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HISTORICAL RECONSTRUCTION OF CULTURE GROWTHS AND ORGANIC EVOLUTION

By A. L. KROEBER

THE purpose of this essay is to discuss certain similarities of aim and method in the reconstruction respectively of culture growths by anthropologists and of organic history or "evolution" by biologists.

1. Cultures, especially in their cyclic aspects, have sometimes been compared to organisms. They are however obvious composites: more or less fused aggregates of elements of various origin, ancient and recent, native and foreign. They are therefore more truly similar to faunas and floras, which also are composites or aggregates of constituent animal or plant species which often are of quite diverse origin in space and time; and the aggregate wholes are representative of, or bound to, natural regions. The nearest analogues to culture areas, such as the West African or Southwest American, therefore are faunal areas like the Holarctic or Neotropical; and cultures are comparable to biotas.

Following this comparison further, one may compare species to culture traits or elements, and genera or families to culture trait complexes. It is plain that this analogy must not be pushed too far, especially as concerns its second half. A culture complex often is "polyphyletic;" a genus is, almost by definition, monophyletic. However, the analogy does at least refer to the fact that culture elements like species represent the smallest units of material which the historical anthropologist and biologist respectively have to deal with.

2. Corresponding to relatively stationary or persistent culture traits or complexes like flint chipping, and to retarded cultures like that of Tasmania, there are long persistent and slowly altering groups of animals such as the sharks, and isolated, retarded faunal areas like Australia and New Zealand. Conversely there can be recognized rapidly diffusing or expanding traits and species, and cultures and faunas subject to invasion and marked by change.

3. Distributional phenomena are of equal evidential weight in the two realms. The geographical occurrence of members of the group Cactaceae with its heavy weighting in Mexico and nearly complete restriction to America, for instance, allows of inferences as to the origin and areal history of the group comparable to the inferences generally made as to the origin of maize agriculture, terraced pyramid construction, and associated culture traits in the Middle American region.

In both sciences, geographical continuity greatly strengthens other evidence for relationship. But continuity of present distribution is by no means indispensable to proof of common origin; and conversely, continuity alone does not prove historic relationship, because of the possibility of phenomena of separate origin secondarily acquiring distributions that are continuous.

4. The Age and Area principle seems the same in biology and cultural anthropology. First used decisively in biology, it seems to have been hit upon independently soon after by anthropologists. In essence the principle was already clear to Ratzel, though he dulled the edge of its value as a technique by wavering between populations and cultures in making its applications.

The same limitations and strictures upon the principle hold in the two sciences. It is closely related groups of species or traits that must be compared, not distantly or unrelated ones: copper working with bronze, for instance, a simple with an elaborate complex of weaving techniques; not bronze with mudbrick-building, or a textile art with a religious cult. A botanist would hardly venture to infer respective age from the distribution of grasses and pines. A zoologist would judge age from area within a genus, family, or perhaps order, scarcely as between classes, or between orders belonging to different phyla. In anthropology this limitation has generally not been recognized explicitly, has occasionally not been observed with due caution, and unnecessary attacks upon the principle have resulted.

5. The phenomena of convergence or independent parallel origin, versus relationship by common origin or descent and spread or diffusion, have long been recognized in both groups of sciences, but their discrimination has generally made no serious difficulty in modern biology while it has led to fundamental controversy in anthropology.

Ratzel forty years ago pointed out that the assumption of independent origin of similar cultural phenomena generally involved a falling back upon self-sufficient but vague forces like the "unity of the human mind" which were parallel to the "spontaneous generation" of the older biologists; and that it is historically more productive to test the facts on the assumption of

a tentative working hypothesis of genetic connection. Where similarities are specific and structural and not merely superficially conceptual, this has long been the accepted method of evolutionary and systematic biology. There is no apparent reason why the same point of view should not prevail in historical anthropology. The risk that working hypotheses may now and then be stretched into systems is one that has to be accepted. As an example may be mentioned the rude pottery figurines which are found from western Mexico to Venezuela and Peru and from which as principal evidence there has been reconstructed an Archaic Middle American horizon or type of culture. If the resemblances of these figurines were demonstrated as specific at several points, no one would hesitate to accept them as evidence of the spread of a common culture, in spite of local variations. If however the resemblances are limited to the conceptual ones of use of clay, crude modeling, and human representation, the case for historic unity is obviously unproven, however valuable these resemblances may be as a suggestion or clue.

6. The fundamentally different evidential value of homologous and analogous similarities for determination of historical relationship, that is, genuine systematic or genetic relationship, has long been an axiom in biological science. The distinction has been much less clearly made in anthropology, and rarely explicitly, but holds with equal force. A concept like that of caste, for instance, undoubtedly has a certain logical or psychological validity, but a very dubious historical validity. Conceptually caste constitutes as unassailable a group of phenomena as that represented by the category "shell fish" (molluscs, crustacea, turtles); historically it may be just as meaningless. On the contrary, it is difficult to see only a superficial analogy between the Aztec patolle game and the Hindu pachisi game, long ago analytically compared by Tylor. Their specific structural similarities in two-sided lot throwing, count values dependent on frequency of lot combinations, a cruciform scoring circuit, the killing of opponents' counters that are overtaken, etc., make out a strong case for a true homology and therefore a genetic unity of the two game forms, in spite of their geographical separation. Biologists would almost certainly judge so. On the other hand, the Aztec-Maya and Southeast Asiatic permutation calendars are similar essentially only in the conceptual fact of applying permutation to time counting. Their respective specific content (the name-sequences), their specific numerical structure (13×20 versus 10×12), in part their function or application in their cultures, are thoroughly different, so that if there is any historic relation at all it must be remote and indirect. On the other hand, if Graebner's attempt to equate the Mexican and Asiatic se-

quences name for name were of a character to compel conviction, a strong point of homology would be established, and therewith a *prima facie* case for historic connection.

In this connection consideration must be given the factor of limited possibilities. There are, for instance, only a few possible types of arrow-release. Recurrences of these in different regions do not accordingly have the same weight as evidence in favor of historical connection, as recurrences in some trait where the possible variations are many. The totality of distributions and especially of associated traits must therefore be scrutinized much more closely before decisions are arrived at. Similarly with standard or regularly used "sacred" numbers. These must almost of necessity be chosen from the numbers between three and twelve. The biological parallel is not exact, but a somewhat similar situation is presented by the limited number of choices which nature has between exo-skeleton, endo-skeleton, and no skeleton.

7. It is the totality of structure which decides relationships between groups of organisms or between culture trait complexes. That some butterflies have only four legs instead of the basic insect pattern of six is of no significance for fundamental relationship, because of the overwhelming identity of structure of these and other butterflies in other respects. The lower number is evidently a secondary phenomenon of reduction, and significant only for sub-classification within the more immediate sphere of relationship. So with a cultural complex which is on the whole a fairly uniform system, like our week, variations are of only secondary moment as long as the essential features of the system recur: a series of seven days named after heavenly bodies or their god-equivalents in a certain sequence. Wherever this set of traits occurs, one cannot doubt direct derivation from a single common source. On the other hand, a market or ritual day recurring every seventh day is by no means necessarily derived from the same source as our week, because the resemblance extends to only part of the features.

There are cases in which it is not a simple matter to decide whether the totality of traits points to a true relationship or to secondary convergence. The ratite birds are an instance in point. It has been held that the ostrich, rhea, emu, etc., form a true group, and again that they represent merely secondary assimilations of originally diverse ancestors. Similarly, the pinnipeds are of doubtful phylogenetic unity. They may be derived from several families of carnivores. Yet few biologists would doubt that sufficiently intensive analysis of structure will ultimately solve such problems of descent as these. There seems no reason why on the whole the same cautious optimism should not prevail in the field of culture; why homologies should not

be positively distinguishable from analogies when analysis of the whole of the phenomena in question has become truly intensive. That such analysis has often been lacking but judgments have nevertheless been rendered, does not invalidate the positive reliability of the method. Masks, secret religious societies, couvade customs, matrilinear institutions, the kingship are a few among many culture-complexes whose history should ultimately be ascertainable with reasonable positiveness, at least in outline. Rivet, Jijón, and Nordenskiöld have definitely shown the extremely high probability of the independent American origin of bronze by taking into consideration all possible associated phenomena, such as the shapes of objects. Without these associated data, the problem would have remained insoluble, other than by mere opinionating.

These remarks do not refute what has been said above in favor of Ratzel's recommendation to consider connection as a possibility in spite of geographic gaps—so long as resemblances are more than conceptual, and so long as any hypothesis remains genuinely tentative and an instrument for further inquiry.

8. Similarly, it must be the totality of constituents which decides relationships between faunas or floras or cultures. These are necessarily always complex, though in varying degree. It may be proved that the Aztecs played a game of Hindu origin and the Mayas sculptured elephants, and yet the bulk of Middle American civilization be a purely native growth. Biologists no longer expect any fauna to have originated wholly in any one remote other region. Neither should anthropologists in regard to a culture. And yet there may be a decisive preponderance. This obviously is expressible only in terms of the totality of species or traits involved.

9. In this connection absences and paucities become important evidence: the total absence of placental mammals from Australia, for instance, especially as coupled with the rarity of marsupials elsewhere. Similarly, the absence from native America of iron, wheels, plows, the usual grains and domestic animals, stringed instruments, ordeals, and proverbs, as pointed out by Boas, indicates strongly that culture in America must have had a history very considerably or prevalently separate from the rest of the world; although such a conclusion leaves some, probably lesser, introductions into America entirely possible, even expectable.

10. Degeneration or simplification is a factor in cultural as well as natural history. Not only can areas become impoverished biotically or culturally, but a system such as a manufacturing technique or sculpture, an alphabet or cult, can degenerate much like an organic group: for instance, the Ascidians, whose simple, regressive structure caused them long to be

excluded from their place among the Chordates. Even the suppression of parts due to parasitism has its cultural parallels: quite probably among the Negritos, and among pastoral nomads in contact with farming and town populations. Rivers' work on the disappearance of useful arts is important in this connection; and Perry and Smith have made out some cases for deterioration which are not the less valuable in themselves because they are used also as arguments for a larger and generally unaccepted scheme.

In the light of the foregoing parallels of biological and cultural method several former and current anthropological theories or points of view appear inadequate when judged by comparable standards in biological science. All explanations of specific culture manifestations as due essentially to the common psychic structure of mankind are about as offhand and antiquated a dismissal of real problems as would be the assumption that organic forms originate spontaneously and independently. Universal schemes of unilinear typological development seem in principle to deserve little if any more consideration than general schemes of unilinear evolution would receive in biology. The Smith-Perry view that substantially all higher civilization is due to the spread from an origin in Egypt about 5000 years ago is about as likely to be right as a thesis that the principal mammalian orders originated at one specified period in one named area under one set of circumstances, and then spread out over the earth with not much more change than the loss of some species, genera, and families and the modification of others. The Kulturkreis theory, or as it is sometimes renamed, the *Kulturgeschichtliche Methode*, is not quite so simplistic. But the six or eight blocks of culture trait associations which it posits as primary are comparable to six or eight associations of species which might be asserted as having produced all the faunas of the world. If any modern zoologist were to advance such a view, he would at least indicate the approximate time and place and peculiar circumstances of origin of his primary blocks or associations. This the Kulturkreisle have hardly, or only secondarily, begun to do. After all, pointing out that this and that recent culture here or there consists largely of constituents from such and such primary blocks, is not the equivalent of defining the circumstances of the origin of the blocks. Father Schmidt's valiant and brilliant remodeling has done much to deprive the original Graebner scheme of its stark baldness and mechanical rigor. But the value of his modifications lies in themselves, not in rendering the scheme more demonstrated. They would probably be having more influence if they had been made independently of the scheme. And finally, the claim to the names "diffusionist" and "culture-historical" is about as unfortunate as if the adherents to a particular set of palaeontological or systematic interpre-

tations were to proclaim these as "the evolutionistic view." All modern ethnologists recognize diffusion and all deal with culture history.

Anthropology is younger than biology and controls a smaller and less intensively organized and classified body of accurate fact. It is natural therefore that critical standards have generally been less exact; that there has been much formulation of broad, conceptually simple schemes subsequently fortified by selected evidence; that too often the necessity has not been felt for purely empirical procedure and strictly inductive interpretation. The foregoing pages have attempted to show that in spite of the difference between organic and superorganic or cultural phenomena, and the widely diverse mechanisms inherent in them, the historic course of the two sets of phenomena, the problems which they present, and especially the methods by which these problems can be approached and valid solutions given, are strikingly similar at many points.

In anthropology as in biology, interest can center primarily in process or in event—in "physiology" or in "natural history." Many physiologists, having only a weak interest in phenomena, are little impressed even by the soundest, empirically founded, careful reconstructions of events, but are correspondingly sensitive to errors and excesses in such reconstructions. They therefore generically distrust the findings of historical—unfortunately miscalled "evolutionary"—biology, and would restrict natural history to a relatively sterile, static, descriptive "systematics," admitting sequences only so far as they are established by the palaeontological record, which will necessarily always be extremely incomplete.

In the same way in anthropology a preponderant addiction to the so-called "dynamic" or processual aspects can lead to a generic suspicion or dislike of all historical reconstruction, whether critical or fantastic, with ethnography relegated to an essentially descriptive rôle, and only archaeological evidence admitted as historically sound—though even then relatively unimportant because processes can never be traced with the same fullness in excavated as in historic or living cultures.

If "physiology" were the only valid aim of the sciences of life and culture, these attitudes would be justified. But since there are no events without processes, and no processes without events, and neither can be wholly grasped without knowledge of the other, what is actually involved is a different centering or weighting of interest; and this reflects temperament or personality as much as anything else. There are those who prefer to deal directly with phenomena, treating process chiefly as it is inherent or implicit in them. There are others whose bent it is to abstract processes, to render them explicit; and to such minds events have little meaning except as step-

ping stones, or illustrations. Each procedure achieves results peculiar to itself; each supplements the other. Carried to extremes in isolation, the one method would lead to an unorganized phenomenalism; the other, to a barren, arid conceptualism. A healthy and complete science must rest on both approaches, on a reintegration of the two. Fundamental misprizal of either approach is unwarranted. A generation or two ago biology entered upon a phase in which some saw virtue and profit only in the laboratory table and experiment. Natural history was decried as merely factual, as antiquarian and descriptive, as productive of the materials of science but not scientific in itself; as uninterpretative when sound, and subjective when interpretative. But natural history has survived and flourishes. Anthropology, having only lately consciously discovered process in culture, is now showing signs of entering the same phase of development. According to some, culture history is to remain a descriptive prolegomena; culture reconstruction, however undertaken, is felt as a waste of effort or dangerous delusion. Except for biology being farther developed, the situation is much the same: within each discipline, tolerance of both the possible approaches is called for. In anthropology as in biology good science consists primarily not in seeing event through process or process through event, but in tempering imagination with criticism and in ballasting judgment with evidence.

UNIVERSITY OF CALIFORNIA,
BERKELEY, CALIFORNIA

THE NEGRO SPIRITUAL:
A PROBLEM IN ANTHROPOLOGY

By GUY B. JOHNSON

WHEN the negro came to this country he came into contact with a musical culture presumably different from that to which he had been accustomed. What is the relation of his subsequent musical products to the African and European musics? Does American negro music retain a large share of African traits? Is it primarily a borrowing of the white man's music, or is it a fusion, a synthesis, partaking of both African and European music traits?

Unfortunately, we know very little about early American negro music and native African music of the same period. The three Jamaican negro songs contained in Sir Hans Sloane's *Voyage to Jamaica* (1688) are probably the earliest known records for America. These three songs were presumably African, but by the time the Folk-Lore Society's Jamaican collection¹ was made over 200 years later, things had changed. Both C. S. Myers and Miss Lucy Broadwood, who examined the tunes in the collection, agreed that "By far the greater part of these Jamaican tunes and song-words seem to be reminiscences, or imitations, of European sailors' *chanties* of the modern class; or of trivial nursery-jingles adapted, as all such tunes become adapted."²

The first large collection of negro songs in the United States was made by Northerners during the Civil War.³ It was composed almost entirely of the songs known as spirituals. So thoroughly had the negro come under the dominance of the white evangelism that secular songs were taboo with him. It is still difficult to collect secular songs from church-going negroes. The spirituals have thus received much more attention than the seculars. They have come to be looked upon by many as the negro's distinctive contribution to American music. For this reason they are the subject of the present paper.

The prevailing attitude in this country concerning the negro spirituals is that they are based more or less upon African music traits. The editors of *Slave Songs* were cautious on this question. They believed that negro slaves had become "imbued with the mode and spirit of European music—often, nevertheless, retaining a distinct tinge of their native Africa."⁴ Later

¹ *Jamaican Song and Story*. (Edited by Walter Jekyll). London, 1907. Sir Hans Sloane's songs are reprinted in appendix A of this work.

² *Ibid.*, appendix B, p. 285.

³ Allen, Ware, and Garrison, *Slave Songs of the United States*. New York, 1867. Reprinted, 1929.

⁴ *Ibid.*, preface, p. viii.

writers, however, began to make claims as to the African origin of various traits of the spirituals. Jeanette Robinson Murphy, a southern woman who published several articles on negro music and interpreted the spirituals from the lecture platform, said, "I early came to the conclusion, based upon Negro authority, that the greater part of their music, their methods, their scale . . . came straight from Africa."⁵

Natalie Curtis-Burlin, a careful student of folk-songs, thought that, although negro music owes something to white music, it is largely "an offshoot from an African root, [as] nobody who has heard Africans sing or even beat the drum can deny."⁶ H. E. Krehbiel published the first extensive analysis of the musical characteristics of the spirituals in his *Afro-American Folk-Songs*,⁷ which was written largely as a refutation of Wallaschek's views.⁸ Krehbiel, whose work I shall draw upon later, argued that the use of the pentatonic scale, certain deviations from the major and minor scales, syncopation, and certain structural features, such as the solo and choral refrain, all indicated the survival of African characteristics in the spirituals.

Some of the negro writers have been rather extravagant in their comments on the spirituals.⁹ Partly as a result of the disparaging statements of Wallaschek, and partly because of the rising tide of negro race consciousness, they have gone to the extreme. They talk about "The miracle of the creation of spirituals," of their having sprung "full-grown from the white heat of religious fervor," of their being "America's only indigenous folk-song."

N. G. J. Ballanta, a native of Sierra Leone who studied music in this country, made a collection of spirituals on one of our Sea Islands in South Carolina. He published a book, *St. Helena Island Spirituals*,¹⁰ the foreword of which is an argument for the African origin of the traits of the spirituals. His theories agree with the finding of Krehbiel, and they are especially interesting, coming as they do from a native of Africa. Ballanta is now in West Africa engaged in the preservation of native songs.

The most thorough general and historical work on negro songs that has

⁵ *The Survival of African Music in America*. *Popular Science Monthly*, 55:660-61.

⁶ *Negro Folk-Songs*. Hampton Series, 2:4 (New York), 1918-19.

⁷ New York, 1914.

⁸ Wallaschek, in his *Primitive Music* (London, 1893), had said that he thought the spirituals were "very much overrated," that they seemed to have been "ignorantly borrowed," "unmistakably arranged," etc.

⁹ See, for example, James Weldon Johnson, *The Book of Negro Spirituals*, New York, 1925. For criticism of Johnson's essay, see Carl Engel, *Views and Reviews* (*Musical Quarterly*), July, 1926.

¹⁰ New York, 1925.

appeared in this country is N. I. White's *American Negro Folk-Songs*.¹¹ White describes a little-known type of American white religious song, namely, the revival and camp-meeting song of the common people during the first half of the nineteenth century, and shows that its subject matter and its form or pattern are indistinguishable from the negro spiritual. He refrains from any extended discussion of the music of negro songs, since he is not trained in music, but, after reviewing the various opinions on the subject, he thinks it "reasonable to conclude that the Negro brought African music with him to America, and that it is a considerable element in the songs he sings to-day."¹²

It is the music of the white revival songs in relation to the music of the negro spirituals that I now wish to discuss. First, however, a few words on the cultural setting of the revival songs. Religious revivals, characterized by emotional outbursts, fainting, shouting, etc., began in this country early in the eighteenth century.¹³ In the early nineteenth century an unusual manifestation of this religious hysteria swept down through the Southern states, continuing until about the time of the Civil War. Swooning, jerking, barking, shouting in "unknown tongues," and other such phenomena characterized the camp meetings. Hardened frontier folk who had got along with practically nothing in the way of organized religious worship were terrified by the fear of Hell and were swept into the soul-saving orgy of the Methodist and Baptist evangelists.

While it is impossible to reconstruct accurately the musical aspects of the revival singing of those days, it is a settled fact that the revivalists were not satisfied with the old and stately hymns of the more dignified faiths. There grew up a body of religious songs characterized by simple tunes and simple words, with repetitive refrains and choruses. Some of these were printed in little camp-meeting songsters, usually without tunes, but many of them were never printed, for the majority of the people were illiterate and could not have read them anyway. A few editors found it profitable to include a number of these "low-brow" songs in their hymnals,¹⁴ and from these we may obtain some knowledge of camp-meeting music. Another source of

¹¹ Cambridge, Massachusetts, 1928.

¹² White, *op. cit.*, 24.

¹³ For further details, see White, *op. cit.*, chap. 2; also my *Folk Culture on St. Helena Island* (Chapel Hill, North Carolina), 1930.

¹⁴ They were usually apologetic, however. One editor wrote: "Some of our hymns, which might be objected to by the more grave and intellectual, and to which we ourselves have never felt any great partiality, have been the means of reaching for good, the hearts of those, who, probably, would not otherwise have been affected."

information is the songs as they have survived among the whites of the southern Appalachians and other more or less isolated sections in the South.

Now, the slaves often attended white religious services, and they were known to be especially fond of the camp-meeting songs. One preacher recorded, about 1835: "The negroes are out in great crowds, and sing with voices that make the woods ring."¹⁵ Another writer stated that "the loudest and most fervent camp-meeting singers amongst the whites are constrained to surrender to the darkeys in *The Old Ship of Zion* or *I Want To Go to Glory*."¹⁶ That there existed a large body of very "folksy" white religious songs and that the negroes had ample opportunity to learn such songs, there can be no doubt.

Using the songs in two white songsters, *Christian Lyre* and *Millennial Harp*,¹⁷ as samples of the white revival songs of a century ago, I have made certain comparisons with the data which Krehbiel worked out for 527 negro spirituals.¹⁸ White has shown so effectively the indebtedness of negro songs to white songs with respect to words and general structure that I shall not go into much detail along those lines. As for the question of African influence on the words of the spirituals, it is sufficient to point out, as White has already done,¹⁹ that the songs with African words surviving in this country are so few as to be insignificant except as curiosities, and that no instance is known of a translation of an African song bearing any resemblance to the words of any American negro song. This leaves the question, To what extent are the words of the spirituals original with negroes? It is becoming more and more evident that the words of the spirituals were largely borrowed from white songs. In *Millennial Harp* alone I have found nearly a hundred lines or couplets which are also found in the spirituals. A few typical lines are:

Ride on, Jesus.

If you get there before I do
Look out for me, I'm coming too.

Lay this body down.

You will see the graves a-bursting

¹⁵ Lucius Bellinger, *Stray Leaves from the Portfolio of a Local Methodist Preacher*, 17 (Macon, Georgia), 1870.

¹⁶ D. R. Hundley, *Social Relations in Our Southern States*, 348 (New York), 1860.

¹⁷ *Christian Lyre*. 18th ed., New York, 1838; *Millennial Harp*, Designed for Meetings on the Second Coming of Christ. Improved ed., Boston, 1843.

¹⁸ For Krehbiel's data, see *Afro-American Folksongs*, 43, 68-70.

¹⁹ White, *op. cit.*, 21-22.

Furthermore, certain sentiments in the spirituals which have been interpreted as originating in the yearnings and aspirations of the slaves were taken over from white songs. For example, the song which became known during the Civil War as the Negro Battle Hymn had much to say of fighting for liberty, yet it was a white revival song long before the war. Its age is indicated by the fact that the negro line, "We want no cowards in our band," was formerly the white line, "We want no Tories in our band."²⁰ Most of the lines in the spirituals which mention freedom, jubilee, the Great Day, etc., were borrowed from white songs. Whatever they came to mean to the negroes, they originally referred merely to the emancipation from sin.

Structurally the white songs and the spirituals cannot be differentiated. They have the same types of stanza, refrain, and chorus patterns, the same simplicity and repetition, the same tendency to make a large number of stanzas by merely varying a word or two.

The custom of singing the spirituals in a leader-and-chorus or solo-and-chorus fashion has been considered by Krehbiel, Ballanta, and others, to be a survival of African technique. This may be true, but I should like to point out that the same pattern existed among the white camp-meeting singers,²¹ although the extent of its use can probably never be determined. Furthermore, the old custom of lining out words and music in teaching new songs to illiterates is in itself sufficient to explain the solo-and-chorus type of singing among the negroes.

The most significant comparisons between the white songs and the negro songs are, of course, the musical comparisons. Fortunately, some of these can be expressed statistically. In assembling the data which follow, I have sought out as many significant points of comparison as possible. In interpreting the data, it should be borne in mind (1) that the white song books used are not confined to the "folksy" types, but contain a great many dignified or standard hymns, (2) that the music of the white songs is music which is printed as the composers thought it ought to be sung, while (3) the music of the negro spirituals is music which has been noted down from the actual singing. A record of the white songs as they were sung would no doubt show an increase in the unconventional traits.

Modes.—The very fact that practically every spiritual known can be fairly easily assigned either to our major or to our minor mode is significant.

²⁰ See White, *op. cit.*, 46, 47, 427.

²¹ Some comments made by Bellinger in his *Stray Leaves* indicate this. The pattern still exists to some extent in the white tradition.

The comparative data are as follows:²²

	Percent major	Percent minor	Percent vague
Spirituals	83.8	11.7	4.4
White songs	78.9	18.6	2.4

Deviations from the conventional major scale.—Since the greater part of both the white and negro songs are in the major mode,²³ it is important to concentrate upon their deviations from the conventional major scale, as shown in the following table.

	Number		Percent	
	White	Negro	White	Negro
Pentatonic	23	111	9.6	25.1
Missing seventh	39	78	16.2	17.6
Missing fourth	10	45	4.2	10.2
Flat seventh	8	20	3.3	4.5
Missing sixth ²⁴	12		5.0	[6.3]
Missing sixth and seventh ²⁴	5		2.1	[2.9]
Regular major and others	143	188	59.6	42.6
Total	240	442	100.0	100.0

The only deviation of any consequence seems to be the use of the *pentatonic scale*, that is, our major scale with the fourth and seventh tones omitted. Krehbiel, Ballanta, and practically all others who have favored the African origin of the music traits of the spirituals, have claimed that the extensive use of the pentatonic scale is strong evidence of African influence. They admit, of course, that the pentatonic is widely used by primitive peoples and that it is frequent in the folk music of Scotland, but they dismiss the possibility of any influence from that source by saying that there were

²² The data on the spirituals are taken from Krehbiel unless otherwise stated. William Arms Fisher, in *Seventy Negro Spirituals* (Boston, 1926), gives data for the spirituals very similar to those of Krehbiel.

²³ In a sense, the tunes in the minor are very important, for here one might expect to find survivals of weird or unusual tunes. Krehbiel thought that the independence of the spirituals of European influence "is still more striking in the case of the minor songs." He set down as the chief deviations from the minor scale (1) the raised seventh (harmonic minor), (2) the raised sixth, and (3) the absence of the sixth. (See *Afro-American Folksongs*, 83-4.) Now these are exactly the three leading deviations which I found in the white songs. One cannot appreciate the weirdness of the white minor tunes of a century ago without playing through some of the old songsters.

²⁴ Krehbiel did not list these at all. I sampled 200 of the same spirituals that he used and found the percentages indicated in the brackets.

not many Scotch in the South. In this they are in error, for the Scotch were a strong element in the settlement of the upper South. In North Carolina, for example, they have been estimated as forming from 11 to 40 per cent of the total colonial white population.²⁵

Furthermore, the people known as Scotch-Irish, who came down the southern valleys in the early nineteenth century and settled in the Piedmont and southern Appalachians, were culturally closely akin to the Scotch. They brought with them the traditional English ballads and other Scotch and English folk music, many survivals of which are still found among their descendants today. It is perhaps no accident that the great camp-meeting era and the great wave of Scotch-Irish migration went hand in hand. It was in the upper South, where the Scotch-Irish were strongest, that the camp-meeting movement reached its greatest heights. And this, be it noted, was the slave-breeding section, the area of small plantations and of the domestic type of slave economy. Songs learned by the slaves here were quickly diffused through the South because of the movement of the domestic slave trade.

Turning aside from the revival songs for a moment, let us see to what extent the pentatonic scale has survived in the folk music brought over from England and Scotland, as indicated by three collections of songs.

	<i>Percent pentatonic tunes</i>
Campbell & Sharp's. English Folk-Songs from the Southern Appalachians.	25
Richardson and Spaeth's American Mountain Songs	21
Smith's, South Carolina Ballads.	28
Krehbiel's analysis of 527 negro spirituals	25

Now the Scotch-English songs are probably more representative of the whole musical environment of the slave than are the songs in the two hymn books which I have analyzed. Is it entirely accidental that the spirituals and the surviving Scotch-English songs should have so near the same incidence of pentatonic tunes?

Other deviations from the conventional major scale as shown in the first table are not frequent enough to need much comment. The close agreement between percentages of the various traits in the spirituals and in the white songs in almost every instance is striking. The flat seventh, much

²⁵ See Bureau of the Census, *A Century of Population Growth*; also R. D. W. Connor, *History of North Carolina*, 143-161.

discussed as an African survival in the literature on the spirituals,²⁶ is so infrequent as to be anything but distinctive. True, its use in actual singing is undoubtedly more frequent than is indicated by the published music, but the same holds for white songs. In fact, the uncultivated English singer knew the minor seventh better than he knew the raised seventh, for the former was traditional in the Gregorian airs, while the latter is a rather recent convention in formal music. As C. J. Sharp has said, "The flattened seventh possesses no terrors for the country singer This use of the flatted seventh, as though it were a leading-note, is often to be found in folk-airs, especially in those of England."²⁷ The flat seventh, like the pentatonic scale, then, could have been acquired by the negro from English tunes as easily as from his African music patterns.

Another deviation which has been said to point toward an African origin is the *neutral third*. This cannot be represented on our conventional staff, so its true frequency is unknown. From experience I should judge it to be used about as frequently as the flat seventh. I have heard the same use of the third tone among white singers. C. J. Sharp has said of the third tone, "The English folk-singer varies the intonation of this note very considerably It is often so flat that it is hardly to be distinguished from the minor third. Frequently, too, it is a 'neutral' third, i.e., neither major nor minor"²⁸ Undoubtedly many white singers used these same intonations of the third in their camp-meeting songs. In the spirituals, the neutral third could be of either African or English descent, and it is certainly not a distinctive trait of the music of the spirituals.

Modulations.—Change from one key or one mode to another within a tune is practically unknown in the spirituals as they are sung today. While modulations are frequent in conventional church music, it is interesting to note that in the revival songs of a hundred years ago, as recorded in the songsters, modulations were rare. This heritage was derived from English folk songs, of which Sharp has said, "It may be taken, as a general statement, that they never change their key or their mode."²⁹

Intervals.—A computation of keynote intervals in the first forty-five

²⁶ I cannot forego quoting here a morsel of scientific thought from *Religious Folk-Songs of the Negro* (Hampton Institute, Virginia), 1927. The editor, commenting on one of the songs, says, "This version of *Roll, Jordan, Roll*, with its weird flatted seventh seems never to have been popular farther North than the Carolinas. Psychologists attribute this to a happier state of mind on the part of the Negroes in the more Northern States."

²⁷ *English Folk-Song: Some Conclusions*, 56, 66, (London), 1907.

²⁸ *Ibid.*, 71.

²⁹ *Ibid.*, 68.

revival songs in *Millennial Harp*, as compared with thirty-five spirituals taken at random from three of the best collections, is summarized in the following table.³⁰

<i>Interval</i>	<i>Frequency of interval</i>	
	<i>White songs</i>	<i>Negro songs</i>
1. P1 (keynote)	396	413
2. Major 3rd above keynote	388	358
3. Perfect 5th above keynote	346	268
4. Major 2nd above keynote	324	254
5. Perfect 4th above keynote	194	117
6. Perfect 4th below keynote	86	101
7. Major 6th above keynote	100	98
8. Minor 3rd below keynote	59	63
9. Octave above keynote . . .	79	51
10. Minor 2nd below keynote	52	37
11. Minor 3rd above keynote	39	36
12. Minor 7th above keynote	9	24
13. Major 7th above keynote	31	6
Total	2,103	1,826

The intervals have been listed in the order of their frequency in the negro songs. It will be noted that their order in the white songs corresponds very closely, the displacement never being more than one step in the rank. It will be noted further that the first three intervals listed—incidentally, these form the major triad—occupy over half of the entire number of intervals in both white and negro songs. To be exact, 54 per cent of the white and 57 per cent of the negro intervals are in the major triad. The negro makes relatively larger use of the keynote and smaller use of the fifth tone, but the comparison develops no significant differences between the two types of songs.

Melodic patterns.—Tunes may be grouped according to certain figures or patterns which they follow. Consider opening phrases, for example. The most common opening pattern in the spirituals, with variations in rhythm, of course, is as follows:



³⁰ For a tabulation of a smaller number of negro songs (spirituals, blues, etc., mixed), see Metfessel, *Phonophotography in Folk Music*, 142 *et seq.* (Chapel Hill, North Carolina), 1928.

White revival songs and folk songs abound in the same opening pattern. Sharp has pointed out that this beginning is found in many folk-tunes, especially those of Celtic nations.³¹

Closing patterns are very diverse, but a sampling of fifty revival songs shows that the principal pattern is composed of the last three, sometimes four, notes of the scale in descending order. This type of ending occurs in a little over one-third of both white and negro songs.

A tune taken as a whole may be divided into phrases which are related in certain ways. Most of the spiritual tunes, like the words, fall into four phrases, the relations of which may be indicated by A-B-A-B or A-B-A-C or A-B-C-D, etc. The second of these is found in nearly 50 per cent of all the spirituals. If the three patterns just mentioned be taken out, only a handful of songs remains. The same holds true for white revival songs and folk songs. There is no particular melodic pattern which is peculiar to, or characteristic of, the spirituals.

Harmony.—A thorough discussion of the question of harmonies in the spirituals would take us too far afield for the present paper. In brief, it may be pointed out (1) that while the accounts of travelers in Africa are conflicting as regards the use of harmony there, the tribal usages apparently range all the way from complete absence of harmonic singing to a fairly well developed system of harmony;³² (2) that in our Sea Islands, where the negroes have lived in comparative isolation and where they should have preserved their African harmonies if they had any, the spirituals are generally sung in unison; and (3) such harmonies as are used in the spirituals are simple and rarely deviate from the harmonic patterns of simple white songs. Emily Hallowell and Natalie Curtis-Burlin labored to preserve the so-called strange and weird negro harmonies, yet William Arms Fisher, in a valuable essay on negro music, concluded that "the net result of the work of these two earnest seekers for the true negro harmony is therefore disappointing to those expecting something unusual, for . . . the harmonization in both cases is altogether conventional."³³

Tempo and rhythm.—Various writers have pointed out the preponderance of duple time in the negro spirituals. Triple time is practically unknown in these songs, but is found in about a third of the white songs studied. A comparison of 250 white religious songs from *Millennial Harp* and *Christian Lyre* with 250 spirituals taken from three collections follows:

³¹ Sharp, *op. cit.*, 86.

³² For a brief summary of opinions, see White, *American Negro Folk-Songs*, 19 *et seq.*

³³ *Seventy Negro Spirituals*, xvi.

	Percent	
	<i>Negro songs</i>	<i>White songs</i>
Duple time	96	70
Triple time	4	30

Syncopation is very common in the spirituals. The "Scotch snap" and negro syncopation are very similar,³⁴ but syncopation is much more pronounced in negro music than in white music. Still, it is not at all impossible that the spirituals owe some of their rhythmic traits to the "Scotch snap." More data on the African side are needed, however, before a conclusion can be reached with respect to rhythm. If duple time and syncopation are pronounced in African music, it would seem that there is evidence that these things have survived in the music of the negro in America.

On the basis, of the comparisons which have been presented above, it appears that, with the possible exception of the rhythmic traits, all of the supposed peculiarities of the negro spirituals are found in the music of white revival songs to about the same extent as they are in the spirituals. This raises the question as to whether there is a direct relationship between the two groups of songs. Were the spirituals "ignorantly borrowed," as Wallaschek said, or were they composed by negroes who were so saturated with the spirit of white music that they retained the traits of that music in their compositions? This question I do not attempt to answer with finality, but I should like to offer certain data which may have a bearing upon the answer.

Starting with certain songs which the negroes undoubtedly borrowed, such as *Old Ship of Zion*, *Old Time Religion*, *Tell Me How You Feel When You Come out The Wilderness*, *Safe in the Promised Land*, etc.,³⁵ I have delved into other white revival tunes in order to determine whether the indebtedness of the spirituals to white songs goes still deeper. I have confined myself to the two books, *Millennial Harp* and *Christian Lyre*. Looking for melodic parallels between over 500 spiritual tunes and as many white tunes is a teasing and elusive affair. I have only scratched the surface. Yet, of the 82 tunes in part 1 and part 2 of *Millennial Harp*, I have traced 10, or one-eighth, in whole or in part into the spirituals. A few illustrations will suffice to show the types of borrowing.

The spiritual, *Who'll Jine d'e Union*,³⁶ is essentially the same as *The*

³⁴ See Krehbiel, *Afro-American Folksongs*, chap. 7.

³⁵ See also White, *op. cit.*, chap. 2, and my *Folk Culture on St. Helena Island*, section on folk songs.

³⁶ Published in *Cabin and Plantation Songs* (Hampton Institute), 1874, and in successive editions of the Hampton songs.

Christian Band, a white song published as early as 1843.³⁷ The words of the two songs are practically the same. The white song has a refrain line, "I will be in this band, hallelujah," while the spiritual has, "Who'll jine de union?" The following phrases, repeated, form the burden of the white song:

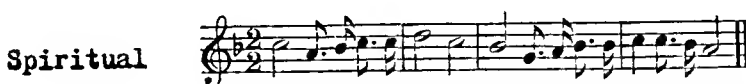


The following phrases, repeated, form the stanzas of the spiritual:



The spiritual is superior rhythmically and melodically to the white song, nevertheless it is derived from it or from a variant of it.

The beautiful spiritual, *I'm a-Rolling Through an Unfriendly World*,³⁸ is akin to a white tune, *Judgment*.³⁹ There is probably a connecting link which is extinct, but the kinship becomes apparent if one neglects rhythm for the moment. The two tunes, with notes spaced to facilitate comparison, are given below.



A white song known as the *Mariner's Hymn*⁴⁰ was made up of two very simple phrases, one of which was as follows:

³⁷ *Millennial Harp*, 2:30.

³⁸ See any good collection of spirituals.

³⁹ *Christian Lyre*, 1:90, and *Millennial Harp*, 1:32.

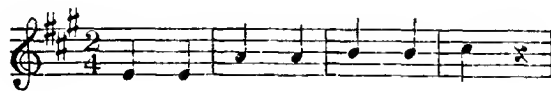
⁴⁰ *Millennial Harp*, 2:39.



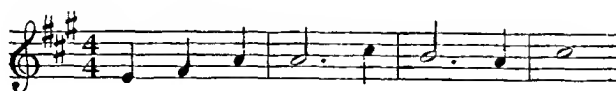
Now this tune probably came from a sea song. Perhaps it existed in several versions. At any rate, when the negroes took it over the salt water stayed with it. They sing it as Hallelujah, or I've Been Down Into the Sea.⁴¹ The stanzas have the following tune, identical with the phrase just quoted from the Mariner's Hymn.



The following example may afford us some insight into the process by which the negro took white tunes and molded them to suit himself. In one white hymn book⁴² containing no tunes a song beginning, "Angel, roll the rock away," at once suggests the spiritual, *De Angel Rolled de Stone Away*.⁴³ The white song is noted as sung to a tune called Hampton. In another book⁴⁴ we find this tune set to entirely different words. The opening strain is



The spiritual tune is as follows:



The four phrases which make up the spiritual are very simple. The first two are merely the above opening phrase repeated, the third is typical of white tunes and is perhaps borrowed from another song,⁴⁵ and the fourth is just an ordinary closing phrase which serves to get the tune back to the keynote. The negroes either made the spiritual on the basis of a short phrase from

⁴¹ See under title "Hallelujah" in James Weldon Johnson, *Book of Negro Spirituals*.

⁴² Nettleton, *Village Hymns*, 117 (New York), 1840.

⁴³ See Ballanta, *St. Helena Island Spirituals*, 80.

⁴⁴ *Christian Lyre*, 2:20.

⁴⁵ It is used, for example, in the white song, *No, Not One, or Glory to His Name*.

the white song, or they borrowed a variant of the white hymn which was already in circulation among the whites. Neither course calls for any particular African influences by way of explanation.

In *Folk Culture on St. Helena Island* I have presented other examples of this kind, but those given above will be sufficient, I think, to establish the point that some of the "best" or "most characteristic" spirituals can be traced back in whole or in part to white revival songs. If, in addition to these considerations, it be remembered that I have not attempted to explore the vast possibilities of specific borrowing from the popular ballads, play songs, and nursery songs brought to this country from England,⁴⁶ nor from the early American popular music and later minstrel music; that numerous songs known as spirituals by the negroes survive in the white tradition as white songs;⁴⁷ that instances are known of a white man's having written spirituals for negroes,⁴⁸ and that certain art songs are even now in the process of becoming negro spirituals;⁴⁹ it will be seen that the history of the spirituals has only begun to be written.

It would be strange indeed if there had not survived at least a few tunes from Africa, and it is certain that a few white songs have grown out of negro songs, but on the whole it appears that the general pattern and many of the details of the religious music which the negro developed during slavery were borrowed from white music.

An important circumstance connected with the diffusion of the spirituals should be mentioned. There is evidence that the majority of the spirituals originated in the upper South and traveled south and west. Many songs now extinct or rare in the Piedmont are sung in the Sea Island region and west of the Appalachians. Isolated areas like the Sea Islands are not areas in which one finds an intensification of African traits in the spirituals, but merely areas which have favored the preservation of spirituals which are elsewhere obsolescent. Spirituals on St. Helena Island, for instance, are not indigenous products, but are the survivals of importations from further north, and they are not noticeably different from the spirituals as sung elsewhere.

⁴⁶ Note, for example, the similarity of *In Bright Mansions Above* and *Wearing of the Green*, and the likeness of *Steal Away to Farmer's in the Dell*.

⁴⁷ I have mentioned some of these above. See also White, *American Negro Folk-Songs*, chap. 2. For an interesting instance, see Louise Pound, *The Ancestry of a Negro Spiritual* (*Mod. Lang. Notes*, 33:442-44).

⁴⁸ Henry C. Work, a white abolitionist, wrote *Kingdom's Coming*, *Freedom Over Me*, and *Babylon Is Fallen*.

⁴⁹ For example, *Going Home*, with a tune from the Largo movement of Dvořák's *New World Symphony*, is gradually being "adopted" as a spiritual.

It may be objected that I have started at the wrong end of the investigation of the relation of the spirituals to African and to English music, that the African side should have come first. But I am content to leave the African aspects to someone who is better qualified to study them. I am sure that, as C. S. Myers said twenty-five years ago, "*A*frican music does not exist."⁵⁰ Our slaves were recruited from dozens of tribal stocks in West and Central Africa, and, if the accounts of travelers mean anything, the variations in musical culture were considerable. When the African data are in, those who have so readily attributed this or that to "African influence" may find some difficulty in proving their claims. The white American revival songs are a historical reality, a cultural unit whose connection with negro spirituals is a demonstrable fact. It is not only logical but essential that one study these songs before delving into the African aspects of the question. Is it not significant that American negroes, for all their diverse African musical backgrounds, have developed in this country a type of music which, with the exception of rhythmic traits, is statistically very much like white folk music?

UNIVERSITY OF NORTH CAROLINA,
CHAPEL HILL, NORTH CAROLINA

⁵⁰ Jekyll, *Jamaican Song and Story*, appendix A, p. 278.

MORPHOLOGY AND FUNCTIONS
OF THE AUSTRALIAN MURNGIN
TYPE OF KINSHIP (PART II)

By W. LLOYD WARNER

THE AMERICAN ANTHROPOLOGIST, 32: 207-256, 1930, carried an article by the writer on the general structure of the Murngin kinship system, a detailed account of the social personalities of the various kin, and the functions of the relatives within the larger structure.¹ In the present paper the larger functions and elements of the system itself will be described and interpreted, the subsection system described and compared with the Arunta and Kariera forms, and the kinship morphology compared and contrasted with the Arunta and Kariera types.

LARGER FUNCTIONS OF MURNGIN KINSHIP

The two main elements in Murngin kinship are the patrilineal lines and their lateral connections through the intermarriage of the five generations of the seven lines of descent.

Perpendicular relationships.—All perpendicular relationships are strong and unbreakable since they are patrilineal lines of fathers, sons, daughters, brothers, and sisters, belonging to the same totemic clans and interlocking families. (No consideration is given here to the distant *tribal* relatives called father, son, etc.) Clan solidarity and family cohesion prevent strife among the relatives who fit into the perpendicular relationship. If ego, for our purposes, is shifted one line to the right, he takes galle's place, and gawel becomes his father; or if he is shifted to the left to dumungur, this again is a father and son line of descent. Each of the seven lines of descent is built out of the restricted family, which preserves its continuity by the patrilineal laws that regulate descent among fathers and sons. The mother, although still considered a member of her father's clan, is through her children firmly bound to *their* clan. To be fully understood, her position must also be considered from the point of view of sister,—she must be seen as a sister to her brother no less than as ego's mother.

Lateral relationships.—Malinowski in his *Argonauts of the Western Pacific* has given a splendid description and explanation of the economic ritual

¹ The field work for this paper was done under the direction of Professor A. R. Radcliffe-Brown of Sydney University, and under the auspices of the Rockefeller Foundation and the Australian National Research Council. I wish to take this occasion once again to thank Professor Radcliffe-Brown for the many kindnesses shown me while I was in Australia.

called the *kula*. Reciprocation is the fundamental basis of this ceremonial exchange which produces a stability and balance in the social relations of the groups and individuals involved. It organizes the structure of the economic group by the exchange of ceremonial objects.

The fundamentals of Murngin kinship also rest on reciprocation, the underlying basis of which, however, is a mutual antagonism between the kinship personalities who form the lateral relationships. This organized antagonism is correlated with a sense of personal integrity or solidarity by each of the social personalities involved. An equilibrium between the organized antagonisms created by the ritual and economic reciprocity forms the smaller segments of kinship, as well as the completed structure when articulated to the perpendicular patrilineal lines of fathers and sons.

All lateral relationships are potentially much weaker than the perpendicular because they involve the partial destruction of an old family by taking a daughter and sister from it to become the wife and mother of a new family to be created. Social change of any kind in a society of this type involves weakness in that part of its structure where the movement takes place and arouses antagonisms between the families and clans involved. Yet the change of a woman's status must continue if the society is to survive. Women must be given if women are to be acquired for wives and mothers to continue one's own clan's patrilineal line of descent as well as the family system.

In each generation the men marry the line to the right of them into lateral articulation with their own patrilineal column, and the women of ego's patrilineal line unite by marriage with the line to the left (see chart 8).

Since all the relatives, all the generations, and all the seven lines do exactly the same thing, let us examine the immediate situation created by the *due-galle* (husband and wife) relationship, for there lies the basis of the social system's lateral structure. Summed up, ego obtains from his mother's brother a woman with whom he copulates and creates a new family; ego reciprocates by giving presents to his mother's brother. More generally, a group of brothers are always giving presents to another group of brothers for their daughters, while the first group of brothers is receiving presents for *their* daughters from still another group of brothers.

This can be symbolized with the pattern shown on page 174.

This diagonal reciprocation creates a line of five relatives running diagonally up from the second descending generation (*kutara*) to the second ascending generation (*mari*), who are forever exchanging women and presents.

In chart 2 this reciprocation has been presented so as to show the core of the whole structure functioning at one time. Starting from the lower left

hand corner, kutara is seen making gifts to ego's waku for his daughters; waku is sending gifts to ego (waku's gawel) for his daughters; ego is performing the same exchange with gawel, while the latter is in a similar position with ego's mari. Thus we see running diagonally throughout the entire

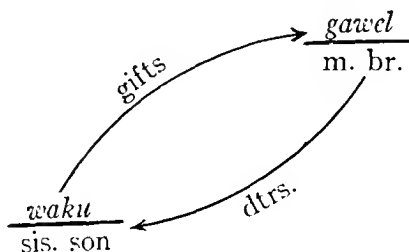


CHART 1

kinship system the reciprocation based on the exchange of daughters and gifts, the older family being broken up by the loss of its daughters and compensated for it by gifts, while at the same time new families are being

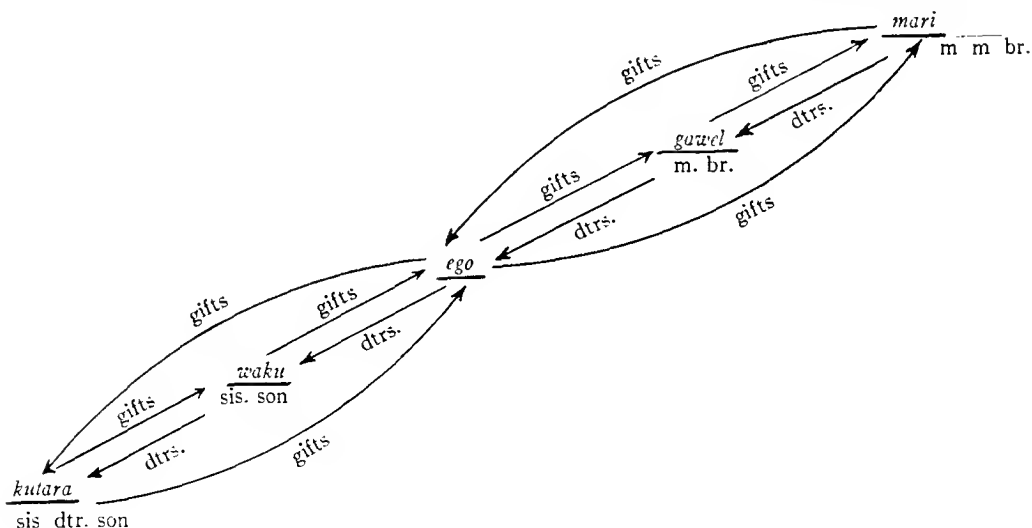


CHART 2

created by the change of the daughter and sister of the older family and of the wife and mother of the newly created family. (See chart 2.)

This same small pattern of behavior (mother's brother \longleftrightarrow sister's son) creates other diagonal lines, the two most important being: first, the line

dumungur \longleftrightarrow gurrong \longleftrightarrow due \longleftrightarrow bapa \longleftrightarrow nati; and second, kaminyer \longleftrightarrow gatu \longleftrightarrow galle \longleftrightarrow marelker \longleftrightarrow natchiwalker. These lines are also exchanging women for presents, as ego's own line does. To see this clearly, let the reader shift ego up into bapa's place, and change other relatives in this reciprocal diagonal line to fit ego's new position, and it will be seen that from dumungur to nati there are people in the same relationship as kutara to mari. (See chart 8.)

There is always the danger that this reciprocity will be broken, that gawel will allow his daughter to go to another relative, other than waku, that a series of runaway marriages, wrong marriages, or wife stealing will break these lateral and diagonal bonds, thereby destroying the relationship system.

Further, the organized antagonism felt by the family whose unity is injured by the removal of a marrying member may result in open conflict that would involve the larger clan unities in the struggle and destroy the social structure since its whole basis is the kinship organization.

This means, then, that the pivotal relatives in the Murngin system, those who articulate the system into a lateral structure, are sisters and daughters who become wives and mothers. Around them all change in the Murngin kinship system takes place.

CUSTOM OF THE MIR-RI-RI

To discover additional methods for saving the structure from destruction because of asocial actions and to get at the real meaning of some customs that heretofore have appeared inexplicable, let us reexamine the Murngin kinship behavior centered around these female relatives.

Fathers and brothers treat a daughter and sister alike in that (1) they decide to which of her dues she will belong; (2) they stand responsible for her loss by runaway marriage, etc.; (3) they beat her for misconduct; (4) they supply another sister and daughter to her due if she dies; and (5) they come to her assistance if she is killed or excessively mistreated by due.

The above largely summarizes a father's behavior toward a daughter, but only gives part of a brother's relationship with his sister.

Except for the fifth case, the father and brother, so far as they obey tribal law, do all they can to keep the relationship permanent and to force the sister and daughter into a permanent marriage. The necessity of keeping a woman with her husband to protect the kinship structure of Murngin society is thus clearly felt by all people, including the members of her own family and clan, whose structure has been damaged by her going to a new family and clan.

The fifth element of behavior indicates a possibility of strife. No brother or father would interfere with a husband chastising his wife, indeed they would help him. But if the wife were being brutally treated, or killed for no just cause, they would interfere, which would usually mean a fight. Such an assumption of responsibility for the sister's and daughter's rights shows that she is still considered a part of her kinsmen's clan and family. It is only under the most extreme provocation that members of a woman's clan would act; no instance was recorded by the author. In case of a husband's brutality, his own clansmen apply pressure to prevent trouble with her clan, and because of a feeling that such conduct is wrong.

If a brother killed his sister, no direct action would be taken by the clan, clan solidarity preventing it. This contrasts with the feeling of her own clan if her husband should kill her. It demonstrates that fundamentally she is considered to belong to her own group, not to her husband's even after she has been taken by the latter's clan.

Yet a brother calls his sister "wakinu" i.e., without relatives; and if her husband swears at her, he throws spears at his sister and all of his sisters not involved in the quarrel. This behavior seemingly contradicts the above statement. There are several possible explanations, but before attempting to interpret these customs I shall quote from the first article on Murngin kinship to make sure the reader is fully conversant with the Mir-ri-ri.

There are two sets of behavior in the relationship of a brother and sister that must be treated together. First, she is called wakinu by all her brothers. Wakinu means a person without kin in its primary meaning, and secondarily it means "worthless" or, more expressively, "rubbish." Bamapama, the trickster hero, a much loved scoundrel who lived in the olden days and broke all laws, is always called wakinu after some particularly fantastic escapade of his has been retold. Wakinu is used during a fight as an appropriate term against one's enemies. No brother can hear his sister sworn at or hear obscenity used before her. Usually when a man's anger rises he immediately bursts into an almost pyrotechnical display of abuse, most of it centering around sex, breaking of incest taboos, peculiarities of the genitalia, irregularities in the sexual act between men and women, etc. This aversion to hearing or using profanity in front of a sister is called "mirriri" (ear-thing). It really means "My ear can't stand obscenity in front of my sister."

The person who swears most frequently at a man's sister is her husband, especially in a connubial quarrel. The husband is ego's due, with whom he has one of the strongest relationships.

A few illustrations follow.

Ma-lam-bu'-nu had come home and found his food unprepared by his wife, Dangra. A quarrel resulted in which he called her matamakmi (incestuous). She did not swear at him. Her near clan brother, Badunga, heard the swearing and be-

came very angry. He gathered a bundle of spears, hooked them one by one to his spear-thrower, and threw them at a large number of the women in the native camp, including Dangra. An investigation showed that everyone of the women at whom he threw were called yeppa by him.

A general camp fight was on; Di-ma-la, who wanted the combatants to stop, cried, "Stop swearing at each other. If you don't stop calling each other those names, I'll have to go throw spears at all my sisters."

There are several recorded instances of a brother throwing spears at yeppa, because someone had sworn at her. In a great majority of the cases it was the due who was swearing at her. An older man said, "It is just the same as if I had been hit on the head with a club when I hear that." Another said, "My heart jumps and stops, jumps and stops, when I hear that mirriri."

If Malambunu had sworn at Badunga's near brother as he had done to Badunga's sister, there would have been a quarrel and possible fight, such swearing between men, however, only happens when there is already a fight on. If Balli had sworn at Natjurli's mother or daughter, he would have done nothing.

It might be said that he throws at her because he believes the swearing to be due to some fault of hers. A brief investigation proves this to be untrue. Balli called her mother by an obscene term because the latter was attempting to stop her from having an illegal relationship with a man who stood in the wrong kinship position to her. Natjurli knew this when he threw spears at her mother (his sister), still he felt impelled to throw them.

Possibly the structure of the kinship system will explain this seemingly anomalous behavior of a brother to his sister; or, to put it another way, structure can explain function.

Yeppa does belong to her clan and family, but for most practical purposes her family and clan lose her to the husband's. If she is called "rub-bish," and without relatives, it means: "We put no real value on this woman, we have thrown her out of our clan, really she was never in it. Our family and clan have not been damaged by her loss as our sister and daughter since she is wakinu and does not belong to them, but we do value her as a wife and mother among your people, hence the various guarantees we make of keeping her with you. We don't want her back, we want to keep the relationship permanent, that is why we say 'she is without relatives.' "

When due swears at yeppa, and wawa or yukiyuko throws spears at her and her sisters, it is of course absurd that she, the offended, should suffer rather than the person responsible. The Murngin know this; they say, "It is silly, but when I hear those words at my sister I must do something. I throw spears at her."

Given the feeling against hearing filthy speeches before one's sister, the following structural interpretation seems to throw the most light on this behavior.

Yeppa is a member of one's own immediate family and patrilineal line. The emotional ties to her are very strong. She is from babyhood to childhood loved and petted by one's father. She is her brother's companion before he reaches the age of circumcision; thereafter, being felt to be such a near relative and with such a strong emotional reciprocation, she is of necessity taboo. This is the woman that a brother throws spears at for an act in which she is the victim. The interpretation is simple. Her patrilineal and family bonds are very strong; everyone knows that in a final test a brother would fight his own due if he went too far when mistreating her. Given the fact that a man cannot hear his sister sworn at, he must choose either to defend his sister and fight her husband, or to do nothing. If he chose the first, it would immediately endanger and possibly destroy for a time the whole lateral structure of his clan's kinship to the rest of the tribe. A fight with a due of another clan would immediately call clan solidarity into action; all the brother's brothers, sons, fathers, etc. would necessarily come to his aid, just as these same relatives of due would help due, so that a general fight would result. A general re-exchange of the women by forceful means would be a very likely possibility. Obviously only the most extreme circumstances would force such action.

Doing nothing is conceivable, but extremely difficult if the emotions are highly aroused by the mirriri. It is out of keeping with general Muringin behavior not to express an emotion socially. Therefore an entirely different possibility has been seized upon and socialized. The sister is treated as though she were her husband, and spears are thrown at her as though she and not he, were the culprit. This saves any trouble between the clans and at the same time expresses extreme displeasure at hearing one's sister abused.

Thus is also utilized the wakinu pattern of behavior toward her. She has been called a person without relatives, something actually impossible in the social life. She is rubbish to her family when the question arises whether she is to stay in her new capacity as mother or go back to her own clan. When brothers throw spears at their sisters, they merely put the wakinu concept into ritualistic expression. They demonstrate that she is not a part of her own family even though due calls her by terms slanderer as well as one's own clan and family; they will not act against the husband or his clan. It also says the opposite. "This woman is called sister by me, I cannot hear obscenity used against her. I throw spears at her to show my dis-

like because if I throw them at you it would cause trouble out of proportion to the cause of it."

A man throws spears at his sister not only when her due swears at her, but when anyone else does. Because of clan solidarity, he could not throw them at any member of his own clan except yeppa, which is allowed by the wakinu concept.

The remaining problem is, Why does a man throw at *all* his sisters instead of confining his act to the one sworn at? But since all women who stand in the relation of sister to ego, no matter how distant the clan, are treated in exactly the same manner (not spoken to, touched, etc.), this act falls under that class of behavior, both as belonging to a general pattern and as an extension of the behavior that comes from the feeling surrounding a blood sister. Emotionally, throwing at several women instead of one, is more satisfactory, since the feelings linked with mirriri are intense and need much activity to vent them.

MARI—→KUTARA SOLIDARITY

As has been said, the lateral structure of the Murngin kinship system is potentially weak. The gawel-waku reciprocal is no exception, because of the change of daughter to wife and because gawel may not give his daughter to his proper waku. This relationship is most decidedly strengthened by the addition of the mari-marelker and gurrong-kutara lines of descent.² The reason is simple. Ego's mari is gawel to ego's own gawel. This places ego's gawel in the same weak position toward ego's most generous and helpful friend (mari) in which ego finds himself toward his own gawel. Many natives have been recorded as saying the following, "Mari is the boss of my mokul rumeru and gawel, and helps me get my galle." Through the mari-kutara tie there is strength between gawel and waku, so that a solid bond is established from mari in the second ascending generation and second lateral line to the right of ego, and kutara in the second descending generation and second lateral line to the left of ego.

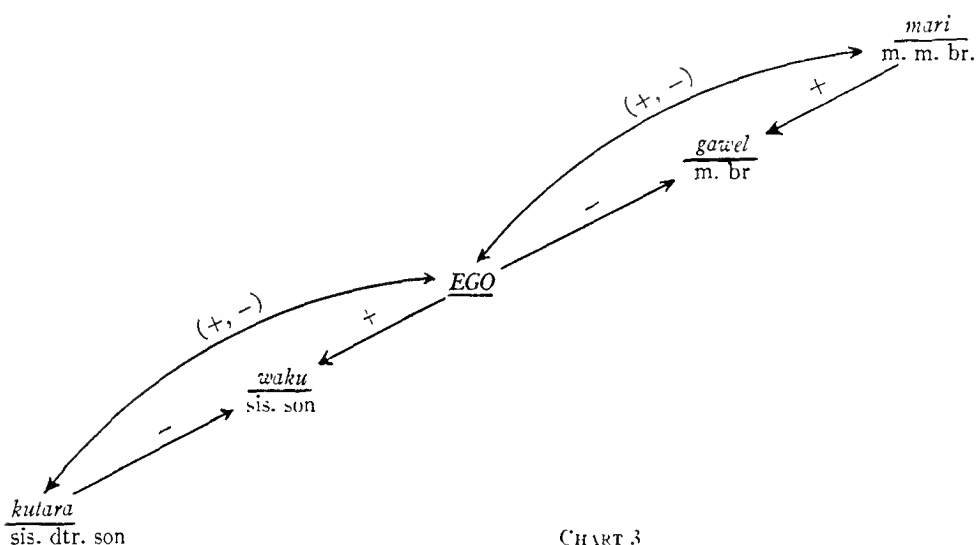
Kutara inherits mari's personal names hence an identity of personality in names: since names are of the utmost importance in Murngin thought and there is a feeling of sameness about things bearing the same name, the great solidarity between mari and kutara can be understood. Even after mari's death he still comes to kutara's aid.³ He is an eternal source of health and comfort to kutara. The latter, usually a younger man, is also a great

² Warner, AA 32:247-252, 1930.

³ Warner, AA 32:248, 1930.

help to mari in time of trouble for he can give physical aid in time of war, is an active huntsman, and, all in all, usually participates in the social life as a mature male still in his prime. Moreover, they belong to the same moiety and frequently to the same clan, which adds to the strength of the positive relationship.

An examination of the kinship structure demonstrates the reasons for this solidarity. Mari's kutara calls the man who is in the relationship of waku to mari by the term gawel. In other words, the person to whom kutara stands in the weakest relationship is a social personality with whom kutara's mari is in exactly the opposite relationship—mari is strong with



kutara's gawel where kutara is weak. Mari's relationship in this case is positive while kutara's is negative. Mari balances this weakness in the gawel-waku relationship by his complete solidarity with kutara.

The whole system can be placed into an algebraic expression of pluses and minuses if we allow a negative or weak relationship to be symbolized by a minus sign, and a positive or strong relationship by a plus. Chart 3 illustrates the system of chart 2 expressed in such terms. It demonstrates clearly the dynamic equilibrium established in the kinship structure by reciprocation. It has in it, as will be shown later in this paper, explanations of the extent and limitation of the Murngin kinship structure.

Beginning with ego and examining the ascending relationships, the arrow, symbolizing the exchange of daughters and gifts between ego and gawel,

shows that ego is in a negative or weak position. The same situation obtains between ego's gawel and mari, for gawel is in the position of waku to ego's mari just as ego is in that position to gawel; and in the descending generations the situation is reversed, for ego is powerful in his relations with waku, whereas the latter is weak; the waku-kutara reciprocation is the same (for waku's gawel to ego's kutara). All the charts and all relatives in this paper are presented from the point of view of ego. In chart 3 (to recapitulate before continuing), the arrow pointing from ego to gawel shows ego to be in a weak or minus relationship with gawel; from ego's standpoint the arrow pointing from mari to gawel symbolizes ego's mari is in a strong or plus relationship with gawel. The position is exactly reversed in the descending generations. The arrow running from ego to waku shows ego to be in a plus relationship with his sister's son, while the arrow pointing from kutara to waku shows that from ego's point of view kutara is in a minus relationship with his son-in-law (waku). These four relationships show two pluses and two minuses equally distributed on each side of ego.

Until now only the shorter line of ascending and descending arrows has been described. The longer arrows (starting from ego) show that ego (who is kutara to mari) and mari both stand in a relationship which is completely balanced, as does ego with kutara in the descending relationship. The plus-minus relationship, both ascendingly and descendingly, in the mari-kutara relationship expresses the symmetrical balance that exists in the negative and positive relationships that obtain between the intermediate relative—an equilibrium has been established in the kinship structure. The two plus signs are balanced by the two minus signs both to the right and left of ego. Mari's antagonism for his son-in-law (ego's gawel) can be expressed by his help and sense of solidarity with ego (his kutara), and ego's sense of weakness with his gawel is compensated for by his feeling of strength when in association with mari.

The social personality of gawel is balanced by the two. He feels strong with his waku and weak with his own gawel, but the very solidarity of mari and kutara strengthens him, for his gawel (ego's mari) will do nothing to harm his interests when the person gawel stands strongest with ego (his waku) is also strong with gawel's own gawel. Obviously the whole Murngin kinship structure, particularly in its lateral expressions, is a system of checks and balances, and establishes a dynamic equilibrium in the kinship structure.

At first sight the enormous extent of a Murngin kinship system seems unexplainable and almost fantastic. There seems no reason for the spread of the lateral lines. With the asymmetrical cross-cousin marriage system

three lines of descent are automatically created, with ego's line, the mother's line (which is ego's marrying line), and sister's husband's line forming the three. They must be recognized by the culture because all people are counted as relatives.

Shall there be a recognition of a new line of relatives and the creation of a new set of social personalities? Or, shall this additional line of kin be "thrown back" into one's own patrilineal line and called by the same terms as those found in each generation of ego's line? This latter expedient is used to set the final limits on the Murngin kinship structure. When the line beginning natchiwalker in the upper right-hand corner of the kinship chart marries into the line at its right, this new line is again called the mari, mokul, marelker line to terminate the system.

Such a procedure, if used after the first three lines of descent are established, would form an ordinary symmetrical cross-cousin marriage situation which would create a Kariera form of kinship. The new line of kin, however, is necessary if the asymmetrical type of marriage is to remain stable, since it has already been explained the mari-kutara reciprocal creates an equilibrium in the kinship structure by balancing the inequalities of the gawel-waku reciprocal. Momelker and natchiwalker are important because the former is the mother of ego's mother-in-law, and the latter because he is the brother of this woman. Dumungur, reciprocal of these terms, is emotionally important because, from the point of view of momelker and natchiwalker, he is the person who has a feeling of taboo for them since the woman is his mother-in-law's mother.

Marelker is mari's son. He follows his father's behavior toward ego. He later will be ego's son's mari. He treats ego's children with all the affection of a mother and father. He is gawel to ego's galle (wife's brother), to whom ego stands in the potentially weak relationship of due. The whole mari-marelker line and gurrong-kutara line add a check to the gawel-galle line, and balance the kinship system.

The momelker relationship is built out of the mokul-rumeru behavior. Ego acts to her as his gawel does—she is gawel's mokul. She is the mother of mokul rumeru, the natives say, and just as one avoids a mother of one's wife so one avoids her mother. The natchiwalker line also acts as a check on the mari line and further balances the kinship system as it stands in the relation of gawel and galle to the mari-marelker line of descent.

MURNGIN SUBSECTIONS

The Murngin, like the Kariera and Arunta relatives, are regrouped into larger reciprocal divisions. Professor Radcliffe-Brown has called these di-

visions "sections" when they number four, as among the Kariera; and "subsections" when they number eight, as among the Arunta. His brilliant paper also for the first time recognized the true importance of these divisions and placed them into the formulae used in this paper.

The Murngin system shares many elements with the two major types of section and subsection found in Australia, but in certain respects it does not conform to either.

There are eight subsections in the Murngin system, four in each moiety. They are:⁴

<i>Dua</i>	<i>Yiritja</i>
A ¹ m. Buralung (Gela)	B ¹ m. Narit
f. Kalint	f. Naritjin
A ² m. Ballung (Belin)	B ² m. Burlain
f. Billindjint	f. Burlaindjint
D ¹ m. Wamut	C ¹ m. Kaidjawk
f. Wamutjin	f. Koitjin
D ² m. Kamerdung	C ² m. Bangardi
f. Kamindjint	f. Bangarditjin

Each subsection has a male and female term, the latter being usually formed by changing the masculine ending and suffixing "-djint" or "-tjint" to the root.

Murngin marriage rules differ from the other two major forms of section systems found in Australia. An A¹ male can marry women out of B¹ or B² subsections and an A² male can marry the same women. The B¹ and B² subsections reciprocate with the A¹ and A² groups. The same is true of C¹ and C² and D¹ and D². In the Arunta system the four subsections of one moiety marry into the four subsections of the opposite moiety, but with the rule that only one subsection out of the first half can marry only one subsection out of the opposite four; but with the Murngin a man of one subsection can marry into either one or both of two subsections in the opposite moiety, but he cannot marry into the other two of the other moiety or into any of his own moiety. This reduces the subsections from the point of view of marriage to the four sections of the Kariera type:

$$A^{1,2} = B^{1,2}$$

$$C^{1,2} = D^{1,2}$$

CHART 4

⁴ Each of the subsection names has been lettered to simplify presentation of the material.

The descent rules, however, follow the usual Arunta method. An A^1 or A^2 man marries a B^1 woman, her children are D^2 . If an A^1 or A^2 man marries a B^2 woman, the children are D^1 ; if a B^1 or B^2 man marries an A^1 woman, the children are C^1 ; or if a B^1 or B^2 man marries an A^2 woman, the children are C^2 .

When a C^1 or C^2 man marries a D^1 woman, the offspring of this union are B^1 . If either of these men marries D^2 , the children are B^2 ; if a D^1 or D^2 man has a C^1 wife, the children are A^2 , or if they marry C^2 , the children are A^1 .

This can be translated into the following formula:⁵

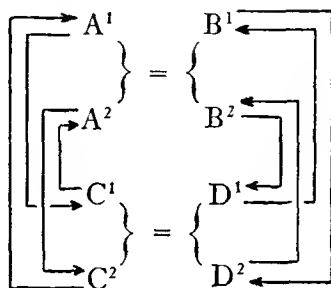


CHART 5

A comparison of these with the Arunta and Kariera formulae shows the concrete differences in the three mechanisms, and further, how the Murngin subsection system combines elements out of the other two forms.

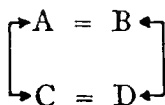
Although the Murngin have eight named subsections, the above charts compared with the Murngin ones, show that these eight divisions are grouped into pairs, so that actually the A^1 and A^2 subsections, for example, are but an A section, and B^1 and B^2 a B section. In other words, there are two intermarrying groups in both Murngin and Kariera, although in Kariera each one of these groups has but one name for the male members, whereas in Murngin there are two names for each marrying section, because it has been divided into subsections.

Further examination shows only two lines of descent in each moiety of the Kariera form, whereas in the Murngin there are four lines of descent in each moiety. If we turn to the Arunta formulae, we see eight lines of descent also, but four marriages instead of two as in the two other systems. To put this concretely, in Kariera the male lines of descent are A to D, D to A

⁵ The = signs are for marriage and the arrows to indicate descent.

in moiety 1, and C to B, and B to C in moiety 2; for Arunta, A¹ to D², and from D² to A¹; from A² to D¹ and from D¹ to A² in moiety 1, and in moiety 2 from B¹ to C¹, C¹ to B¹, B² to C², and C² to B² in moiety 2. In Murngin the son of an A¹ man may be D¹ or D² depending upon which subsection he married into, or an A² man's children will also be D¹ or D². This is true of the male descent of all the subsections. In the Kariera, Arunta, and Murngin systems in the event of a wrong marriage, "the father is

(a)

Kariera:

(b)

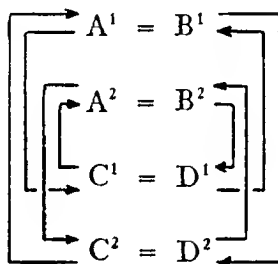
Arunta:

CHART 6

thrown away."⁶ In the Kariera and Arunta, this rule operates only for wrong marriages, since a member of a section or subsection in these systems can marry properly into only one other section or subsection. In Murngin society it is also a device used for wrong marriages in the kinship system, but in the subsection system it has been formalized so that A¹ or A², for example, are made into the regular spouses of B¹ and B², and neither of the males of B¹ or B² has any control over the descent of their children from the wives of A¹ and A². The child's subsection is always determined by the mother's position in the eight subsections and never by the father's.

To restate the situation, the kinship system of the Murngin is patrilineal and matrilineal; but the subsection system, which is only an extension

⁶ See Warner, *op. cit.*, 255 f.

of the kinship system, is purely matrilineal. For as far as the descent of the child is concerned it makes no difference if the father belongs to the two regular subsections into which the mother's subsection ordinarily marries, or to an irregular one. The mother's subsection is final in determining the child's subsection.

Within the Murngin subsection system there are two unnamed matrilineal cycles, or to express it in another way, four lines of female descent. The first is $B^1 \text{---} D^2 \text{---} B^2 \text{---} D^1 \text{---}$ and B^1 ; the second $A^1 \text{---} C^1 \text{---} A^2 \text{---} C^2 \text{---}$ and A^1 . These two unnamed cycles of descent through the female line show that in addition to the named patrilineal moieties the Murngin also have unnamed matrilineal moieties, because of the descent through the mothers of a subsection. The child's subsection, however, is always in his father's moiety, even though his position in the subsection of his father's moiety is wholly dependent upon that of his mother's in her moiety.

These two cycles may be expressed by the following formula:

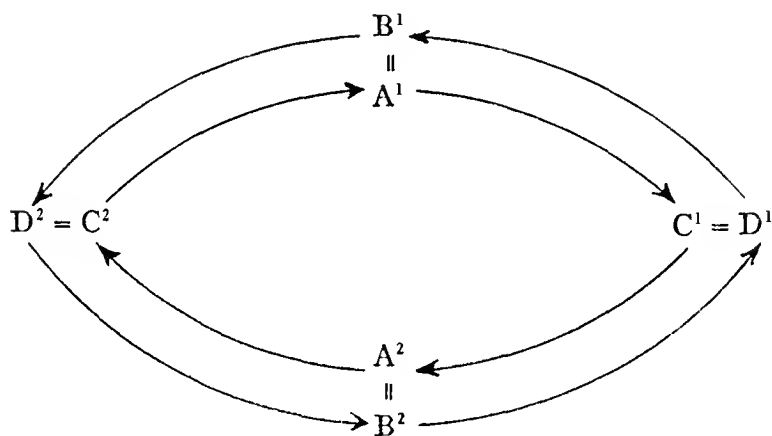
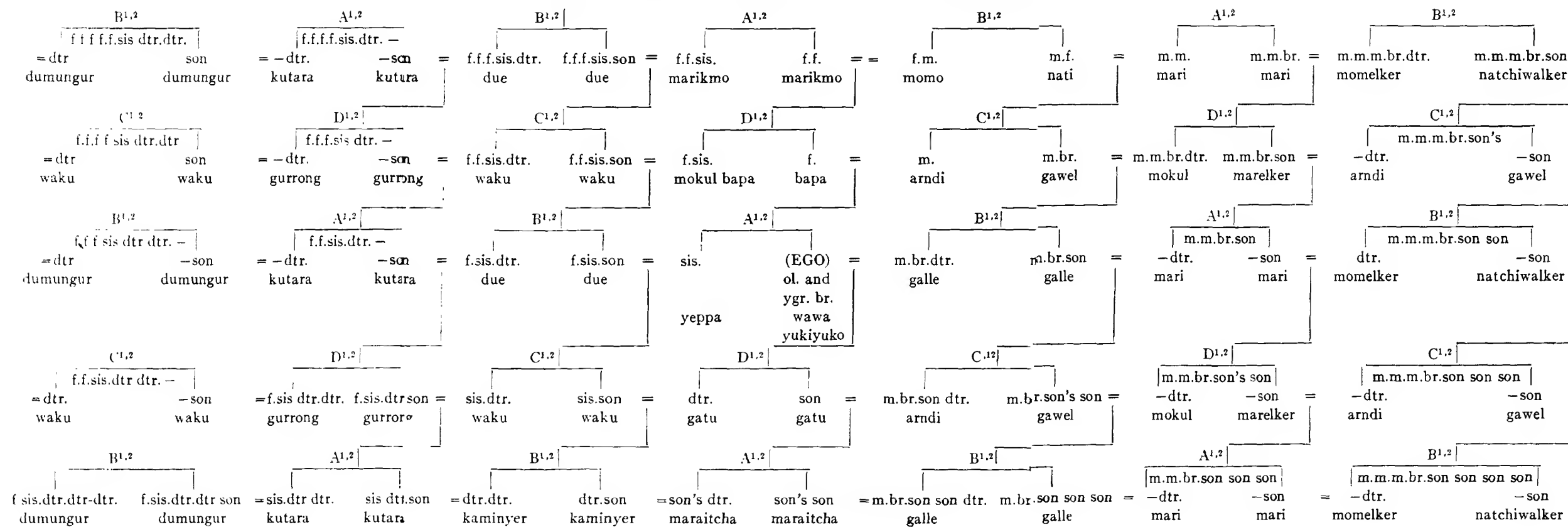


CHART 7

The descent cycles of the Murngin and the Arunta through the female lines are exactly the same except that in Arunta the optional marriage is not permitted.

The articulation of the subsection to the kinship system is given in chart 8. It will be seen that each patrilineal line of the kinship system has four subsections in it, consisting of two alternating pairs. For example, the first line at the left of ego (see chart 8) shows B^1 and B^2 alternating by generation with D^1 and D^2 .

CHART 8. ARTICULATION OF MURNGIN SUBSECTIONS WITH THE KINSHIP SYSTEM



This means that each group of relatives will be divided between A^1 and A^2 in a generation and line. In other words, all father's fathers and father's father's sisters are divided between A^1 and A^2 (there will of course be father's fathers in both subsections, as well as father's father's sisters); all fathers and father's sisters between D^1 and D^2 ; all brothers and sisters between A^1 and A^2 ; all sons and daughters between D^1 and D^2 ; all son's sons and son's daughters between A^1 and A^2 . Thus we have described ego's own patrilineal line by generation, and shown that a pair of subsections alternates with another pair of subsections, and divides the group of relatives of each generation into two divisions. The same is true, except for different subsections, for all the other lines of descent.

Here one of the fundamental laws of Australian kinship is broken, for the equivalence of brothers and sisters is well recognized in all subsection systems of the other tribes. This makes a slight maladjustment in the kinship system. The natives themselves feel this. They always say that a pair of subsections are "all the same as brothers, but different."

A glance at the articulation of the subsection system and the kinship system from the point of view of the subsection also throws further light on the subsection system. The relatives have been placed in the above grouping of four instead of eight because each relative will be found in two subsections, as has been said before; that is, some of ego's brothers and sisters will be in A^1 and others will be in A^2 , just as some of ego's mother's brother's daughters will be in B^1 , and others in B^2 . The grouping of the relatives into four sections is exactly the same system used by the Kariera, and the contents of the above four pairs of subsections are the same as the four Kariera sections, except that Murngin has additional terms in each of the four groups.

The Murngin use their subsection system much as they do their kinship system; a man or a woman is called by his subsection term almost as often as by his kin designation. Even the children use a subsection title, usually employing it more frequently than the kinship term.

At large intertribal gatherings when the kinship term is difficult to obtain because of the remoteness of the various relatives, the subsection terminology is used, which with slight variations is the same throughout northeast Arnhem Land. Some of the people come from hundreds of miles for these great ceremonies in the lower Goyder and Glyde rivers districts, and their *kinship* terminology is utterly different. Since the section terms are practically the same and only eight in number, it is comparatively easy to discover one's subsection relationship to an utter stranger. The subsections also play a prominent rôle in three of the main ceremonies. In the Djung-

gunn ceremony they regulate the order of certain dances and also the time for calling out the sacred names of the men's dead ancestors. The subsection, as well as the clan and moiety, system of the Murngin has a totemic significance, since each subsection has a group of totems attached to it, viz., A¹ Buralung: stone kangaroo, night heron, sultry albatross, and wallaby; A² Ballung: iguana; D¹ Wamut: wedge-tailed eagle; D² Kamerdung: sea eagle and the sun; B¹ Narit: grey kangaroo and a small fresh water fish; B² Burlain: emu, and thin-legged kangaroo; C¹ Kaidjawk: ibis; C² Bangardi: brown-tailed hawk.

These totems and the subsections, as well as the position of the subsection in ceremonies, will be more fully discussed in future papers dealing with totemism, local organization, and ceremony.

The older writers always looked upon the subsections and sections as a system to regulate marriage alone. The above description proves clearly that it serves as an extension of the kinship system rather than as a regulator of marriage. The evidence presented even by the earlier authors shows that it does not regulate marriage, because the relationship of a woman and man finally determines what persons they marry. In Murngin as well as Kariera, ego always marries his mother's brother's daughter, and it is of no concern which subsection she is in—in Murngin because he can marry a woman of B¹ or B² if he is an A¹ or A². It is her kinship relationship to him that really counts. Further, in the group from which he takes his wife (mother's brother's daughter) there are several women that he cannot marry (father's mother, daughter's son, etc.).

MURNGIN SYSTEM COMPARED WITH THE ARUNTA AND KARIERA SYSTEMS

The tribes with the Murngin system of relationship vary most decidedly from the normal Australian types. The fundamental mechanism of most Australian kinship systems is the exchange of brothers and sisters between two marrying families, hence a symmetrical relationship. In the case of the Kariera type⁷ symmetrical cross-cousin marriage is practised, that is, ego marries his mother's brother's daughter, who is at the same time his father's sister's daughter, and ego's sister marries her mother's brother's son who is also her father's sister's son, since ego's father's sister and his mother's brother are husband and wife. In the Arunta form^{7,8} ego marries his mother's mother's brother's daughter's daughter and his sister marries

⁷ See A. R. Radcliffe-Brown, *Three Tribes of Western Australia*.

⁸ See Spencer and Gillen, *The Arunta, a Stone Age People*.

her mother's mother's brother's daughter's son (or to describe them differently, ego's father's mother's brother's son's daughter and father's mother's brother's son's son). This, too, permits brother and sister exchange between two families and allows a symmetrical relationship of mutual obligations and privileges to function between the two social units.

The Murngin system is not based on this plan but upon asymmetrical cross-cousin marriage. Ego can marry his mother's brother's daughter, but he cannot marry his father's sister's daughter; ego's sister can marry her father's sister's son but not her mother's brother's son. There is a clear distinction made between father's sister and the wife of mother's brother, each having a term of her own to designate her position in the kinship system. There are equally definite distinctions made between father's sister's husband and mother's brother.

The marriage mechanisms of the Kariera, Arunta, and Murngin types can be put into the formulae⁹ shown on page 190.

A study of this formulae shows that kinship systems based on such mechanisms will each have an entirely different morphology from the others. The Kariera form will allow only two lines of descent and therefore has only very narrow lateral extensions, while the Arunta's lateral extensions are also well defined, but through secondary cross-cousin marriage they have created four new lines of descent. On the other hand, the Murngin system allows indefinite lateral expansion, unless some mechanism other than asymmetrical cross-cousin marriage is introduced to define its lateral extensions.

The chart on page 191, of the complete forms of the three systems, illustrates what each group of tribes has done with the basic marriage mechanism found among each to expand it into a complete kinship system.

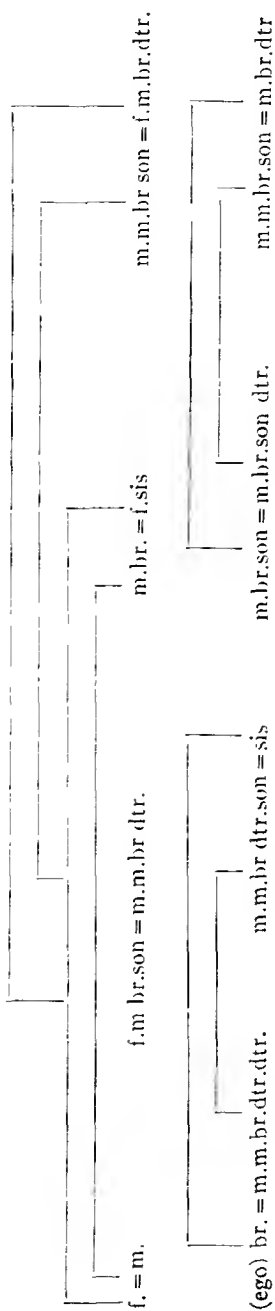
The Murngin system (see chart 8) has seven lines of descent with five generations considered. There is a sister and brother at each intersection of generation and patrilineal line. These thirty-five intersections with two relatives at each intersection create seventy relatives plus one for older and younger brothers in ego's own patrilineal line and generation. A glance at charts 9 and 10 shows the Kariera with only twenty-one terms and the Arunta with forty-one. Thus the Murngin system is a much more complicated one and creates a much more complex social personality out of ego as a member of this kinship system than is found in the other two types, for each of the seventy-one positions has its obligations and privileges in reciprocation with the other seventy-one.

⁹ For the first use of the first two formulae, see A. R. Radcliffe-Brown, *op. cit.*

Kariera:



Arunta:



Muringi:

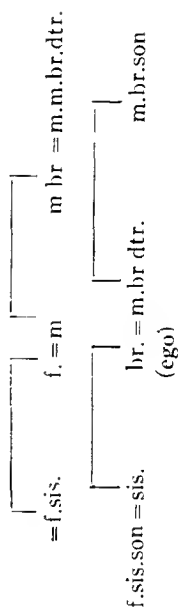
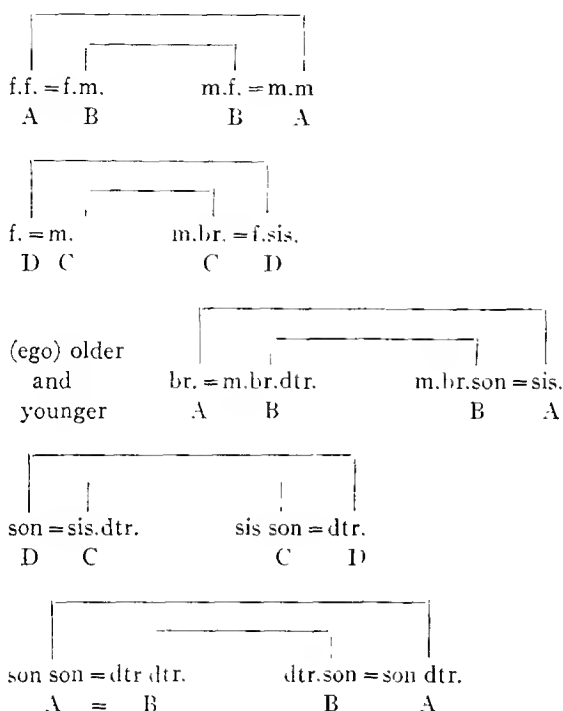


CHART 9. KARIERA SUBSECTIONS ARTICULATED WITH KARIERA KINSHIP



DESCRIPTION OF MURNGIN KINSHIP

Murngin marriage is exogamous, ego marrying his mother's brother's daughter but not his father's sister's daughter; while ego's sister marries his father's sister's son but not ego's mother's brother's son. Ego's father's sister does not marry his mother's brother, but she marries his father's father's sister's son, and mother's brother marries ego's mother's mother's brother's daughter. From the viewpoint of father's sister (that is, making her ego for the moment) she marries her father's sister's son and mother's brother marries his mother's brother's daughter.

In the second ascending generation ego's father's father marries mother's father's sister and father's father's sister marries father's father's sister's son. In the mother's line of descent ego's mother's mother marries father's mother's brother and mother's mother's brother marries ego's mother's mother's mother's brother's daughter. (It will be easier to follow this if the reader will keep chart 8 before him.)

In the first descending generation ego's son marries ego's mother's brother's son's daughter and ego's daughter marries sister's son, while mother's brother's son's son marries mother's mother's brother's son's son's daughter, and sister's daughter marries father's sister's daughter's son.

In the second descending generation son's son marries mother's brother's son's son's daughter and son's daughter marries daughter's son. Ego's daughter's daughter marries sister's daughter's son, and sister's daughter's daughter marries father's sister's daughter's daughter's son.

A comparison of the second ascending generation's relatives of the Kariera and the same group of relatives in the Arunta will give the reader a better grasp of Murngin morphology. In the Kariera form, father's father's sister would be not only father's father's sister but mother's mother (she marries mother's father). In the Arunta system father's father's sister is a separate social personality, however, she does not marry mother's father but father's mother's brother.

Father's father in Kariera is mother's mother's brother. He marries mother's father's sister. Father's father in Arunta does not marry mother's father's sister, nor is he mother's mother's brother, for the latter is a separate relative.

Among the Murngin father's father is also not mother's mother's brother, but he does marry mother's father's sister. The Kariera's father's mother is mother's father's sister; among the Arunta she is not. (See charts 8, 9, 10.)

The Kariera mother's mother is father's father sister. She marries father mother's brother. The Arunta's mother's mother is not father's father's sister. She does not marry father's mother's brother. The Murngin mother's mother is not father's father's sister, but she does marry father's mother's brother.

Among the Kariera, mother's mother's brother does not exist as a separate relative. Among the Arunta and Murngin he does. Among the Arunta he marries mother's father's sister, who does not exist in Kariera except as father's mother. In the Murngin system, mother's mother's brother has a kinship term but he does not marry mother's father's sister. His wife is mother's mother's mother's brother's daughter, who does not exist in Arunta or Kariera, being classed by both as father's mother.

The above description of the three systems brings out certain definite differences between the Murngin and the other two forms, which differences may be generally summarized as follows. There are only four relatives in the second ascending generation in the Kariera system—two male and two

female; in Arunta there are eight—four male and four female; and in Murngin there are fourteen terms, seven male and seven female.

The differences show clearly in the following chart:

CHAPT 11

f.f.f.f.sis.dtr.dtr.dtr.	f.f.f.f.sis.dtr.dtr.	f.f.f.sis.dtr.	m.m.m.br.dtr.	m.f.sis.	f.f.sis.	m.m.	f.m.	f.f.f.f.f.sis.dtr.dtr.son	f.f.f.f.sis.dtr.son	f.f.f.sis.son	m.m.m.br.son	m.m.br.	f.m.br.	m.f.	f.f.	
-	-	-	-	-	-	×	×	-	-	-	-	-	-	×	×	Kariera
-	-	-	-	×	×	×	×	-	-	-	-	×	×	×	×	Arunta
×	×	×	×	-	×	×	×	×	×	×	×	×	-	×	×	Murngin

× = present.

- = absent,

The above chart shows that Arunta and Murngin have all the terms in the second ascending generation found in Kariera, that Murngin, although it has many more terms than Arunta, has no term for father's mother's brother or mother's father's sister, since in Murngin the male relative is classed as mother's father, and the female as father's mother. Murngin has eight terms not possessed by Arunta, and ten not found in Kariera.

Charts 9 and 10 show that Murngin has every relative found in the Kariera system although they marry differently and the social personalities are different. With the exception of the two terms in the second ascending generation, Murngin also has all the relatives found in Arunta. The marriages are different, as are their social personalities.

The actual consanguinity of the near relatives is different, while the tribal relatives are traced by partly different connections. The big difference between the Arunta and Kariera kinship systems is the fact that in Kariera mother's brother's daughter is a relative one must marry, but in Arunta ego must marry mother's mother's brother's daughter's daughter. In Murngin one marries one's mother's brother's daughter, preferably one's own mother's brother's child. If she cannot be obtained, then the daughter

of ego's mother's half-sister's brother is sought. The mother's brother's daughter in Murngin is also one's mother's mother's brother's daughter's daughter. (See charts 8, 9 and 10.) This relationship is not merely a concomitant of the recognized mother's brother's daughter in Murngin, but is fully recognized by the kinship morphology and its functions. Mari (mother's mother's brother) and kutara (sister's daughter's son) have a very close bond in this system; and mari does much toward securing kutara his proper mate.¹⁰

In Arunta, mother's mother's brother's daughter's daughter is also father's father's sister's son's daughter, and father's mother's brother's son's daughter. This is not true in Murngin. Father's father's sister's son's daughter in Murngin becomes father's sister's daughter and she marries a relative not found in the Arunta system,—father's father's sister's daughter's son (see chart 8). In Arunta, father's father's sister's son's daughter is not father's sister's daughter. They are two different social personalities. Father's mother's brother in Murngin becomes mother's father (he is not recognized as the former, but is always looked upon as the latter). Mother's father's son's daughter, in other words, mother's brother's daughter, is of course the woman ego marries.

Ego's sister marries mother's brother's son (wife's brother, actual or tribal) in Kariera; in Arunta, ego's sister marries father's father's sister's son's son (wife's brother, actual or tribal). In Murngin, ego's sister marries father's sister's son (but not ego's wife's brother, actual or tribal, which is forbidden).

The father's sister's son in Murngin is also father's father's sister's son's son as in Arunta, but not father's mother's brother's son's son. (In Murngin this last relative, who is mother's brother's son, marries mother's mother's brother's son's daughter.)

In the first descending generation in Murngin, son marries mother's brother's son's daughter (she is at the same time mother's mother's brother's son's daughter's daughter); daughter marries sister's son, who is at the same time father's sister's son's son. In Kariera son marries sister's daughter (mother's brother's son's daughter) and daughter marries sister's son (mother's brother's son). In Arunta, son marries mother's brother's son's daughter, who is also mother's mother's brother's son's daughter's daughter and daughter marries mother's brother's son's son, who is also mother's mother's brother's son's daughter's son.

In the second descending generation, Murngin and Kariera have son's

¹⁰ For further recognitions of this relationship see the first part of this paper.

son, son's daughter, daughter's son, and daughter's daughter, but in addition to these four relatives the Murngin system possesses sister's daughter's son, sister's daughter's daughter, father's sister's daughter's daughter's son, father's sister's daughter's daughter's daughter, mother's brother's son's son's daughter, mother's brother's son's son's son, mother's mother's brother's son's son's son's son, and mother's mother's brother's son's son's son's son's daughter, mother's mother's mother's brother's son's son's son's son's son and mother's mother's mother's brother's son's son's son's son's daughter (see chart 8).

Arunta has the four relatives found in Kariera and also has sister's daughter's son and sister's daughter's daughter, as well as sister's son's son and sister's son's daughter.

In Murngin, son's son (he is also mother's brother's son's daughter's son) marries mother's brother's son's son's daughter (she is also mother's mother's brother's son's son's daughter's daughter). In Arunta she marries sister's son's daughter (mother's mother's brother's son's son's daughter's daughter). Sister's son's daughter is daughter's daughter in Murngin, daughter's son in Arunta is an entirely different person, and he marries sister's daughter's daughter. This last person in Murngin marries father's sister's daughter's daughter's son. In Murngin, son's daughter marries daughter's son (sister's son's son). In Arunta she marries sister's son's son, but not daughter's son.

RECIPROCAL¹¹

"*Man speaking*" and "*woman speaking*." These terms do not apply to the reciprocals of the Murngin people as they do among certain other Australian peoples. They follow a very simple rule: ego and his sister call all relatives by the same term. If ego calls a man or woman, "*kutara*," she addresses him by the same term. This means that ego's son and daughter, whom he calls *gatu*, are also called *gatu* by his sister, while her children are called *waku* by him and by her. Ego's sister's husband calls her children *gatu*, and ego's sister's husband's sister would also call them *gatu*. Ego's mother calls him *waku*.

The above method, like most exotic systems of nomenclature, seems strange and "unnatural" to a European, yet they have only extended a method we partially use. To all ascending relatives a sister and brother in our society apply the same terms (mother, father, aunt, uncle, grandfather, and grandmother). They also apply the same terms to certain lateral rela-

¹¹ These relationships are fully described in Warner, *op. cit.*

tives, such as first and second cousin. The Murngin do the same except that they include the descending relatives.

There is thus almost a complete equivalence of brothers and sisters, which extends to sisters the usual equivalence of brothers found in primitive society.

The Murngin reciprocals are:

Wa-wa	↔	Yu-ki-yu-ko
Wa-wa	↔	Yep-pa
Yu-ki-yu-ko	↔	Yep-pa
Yep-pa	↔	Yep-pa
Du-mun-gur	↔	Na-tchi-wal-ker
Du-mun-gur	↔	Mo-mel-ker
Wa-ku	↔	Ga-wel
Wa-ku	↔	Arn-di
Ku-tar-a	↔	Mar-i
Gur-rong	↔	Ma-rel-ker
Gur-rong	↔	Mo-kul (ru-mer-u)
Du-e	↔	Gal-le
Ka-min-yer	↔	Nati
Ka-min-yer	↔	Mo-mo
Ma-rik-mo	↔	Ma-rai-tja
Ba-pa	↔	Ga-tu
Mokul Bapa	↔	Ga-tu

KINSHIP TERMINOLOGY, SUBSECTIONS, AND MOIETIES¹²

(Relations of a man of A¹ or A²)

<i>Moiety 1</i>	<i>Moiety 2</i>
A ^{1,2}	B ^{1,2}
Marikmo	Nati
Maraitcha	Kaminyer
Wawa (ego)	Momo
Yukiyuko	Galle
Yeppa	Due
Mari	Natchiwalker

¹² Also see chart 8.

Moiety 1

Kutara
D^{1,2}
Bapa
Gatu
Marelker
Mokul rumeru
Gurrong

Moiety 2

Dumungur
Momelker
C^{1,2}
Gawel
Waku
Arndi
Waku

HARVARD UNIVERSITY,
CAMBRIDGE, MASSACHUSETTS

THE MAYA DAY-SIGNS BEEN AND KAN

By HERMANN BEYER

THE hieroglyph for the Maya day Been appears frequently with the horizontal double line (figs. 1-3), indicating that the signs must be regarded as a compound of two different elementary parts.¹ The upper half contains two simple details in the form of loops or rectangles, which can be identified with a variant of the day-sign Chicchan (fig. 4), found by

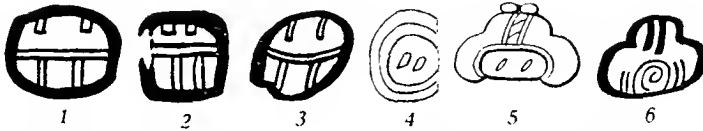


FIG. 1. Been. C. Per. 19.

FIG. 2. Been. C. Tro-Cort. 55 b.

FIG. 3. Been. C. Dresd. 25.

FIG. 4. Chicchan. Copan. Alt. H'.

FIG. 5. Yax. Palenque, Palace, House D. Pier d.

FIG. 6. Yax. C. Dresd. 31 c.

Dr. Morley in Copan.² I cannot tell what object or part of a material thing these inclined oval or roughly quadrangular forms are intended to represent, but they must be related to fire, since the flame and number three replace them (figs. 5-7).

That the diagonally laid loaf-like figures are identical with the loops of Been cannot be directly proven for this sign, but there exists another hieroglyph, Landa's letter "i," in which the detail appears in both forms under circumstances which clearly point out that they have the same meaning (figs. 8-12). If, in this case, the loops are only a variant of the loaves, they must also be so regarded in the case of Been.

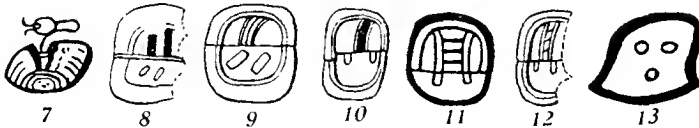


FIG. 7. Yax. Variant C. Dresd. 73 a.

FIG. 8. Landa's *i*. Copan Hier. Stairway.
Fallen steps. F 1.

FIG. 9. Landa's *i*. Same. disconnected
fragments. Row F.

FIG. 10. Landa's *i*. Palenque. T C. C 1.

FIG. 11. Landa's *i*. C. Per. 5.

FIG. 12. Landa's *i*. Palenque. T C. C 17.

FIG. 13. Ahau. C. Dresd. 47.

¹ Hermann Beyer, *Einige zusammengesetzte Mayahieroglyphen*. IAE 27: 91-93 (Leiden), 1926.

² Sylvanus G. Morley, *The Inscriptions at Copan*, 188, 1920.

The lower half of Been (see again figs. 1-3), also contains two details which are alike. I venture the hypothesis that they represent the outlines of the Maya number ten, which plays a great part in symbolism.³ The fact that only the contours and not the black bars are given is similar to the case of another day-sign, namely Ahau, where small circles are employed in the place of black disks (fig. 13). Ahau as a noncalendric glyph appears sometimes with black details (fig. 14). The hieroglyphs for the twenty days were the most frequent signs and for that reason we can expect them to be the most simplified conventional figures of the Maya graphic system. The filling out of black spaces required time, therefore they were left blank for the sake of convenience, not only in the cases of Ahau and Been, but also in the cases of other hieroglyphs.⁴ Evidently in cases where the clearness of the reading was not involved, a black detail could be denoted by merely outlining it.



FIG. 14. Ahau, C. Tro-Cort. 102 b

FIG. 15. Been Tikal, wooden lintel.

FIG. 16. Been. From pottery vessel no.

333, Museo Arqueológico, Mérida, Yuc.

FIG. 17. Been. Piedras Negras, Alt. 2.

FIG. 18. Been. Yaxchilan, Lintel 25.

FIG. 19. Been. Yaxchilan, Lintel 37.

The conjecture of taking the lower part of Been for a simpler form of number ten is justified, as there really exist a few cases (figs. 15 and 16), where the full form, cross-hatched bars (which are equal to the black bars in the written documents), is given. The sign for ten is, like the loops, a fire symbol. Therefore Been must refer to fire or related ideas like sun, light, summer, etc. This is in consonance with the corresponding Aztec day-sign Acatl, "Reed," which, among other things, represents the fire-drill, and which sometimes appears together with flames.⁵

In the composed glyph of Landa's "i," we see that the two black bars (fig. 8), the white bars (fig. 9), one black bar (fig. 10), and the "steps" (figs. 11 and 12) interchange, and they do this in several other hieroglyphs, as, for instance, in figures 5 and 6. In the case of Been we find the same

³ Hermann Beyer, *La Cifra Diez en el Simbolismo Maya*. *Revista Mexicana de Estudios Históricos*, 1:3-7 (Mexico), 1927.

⁴ Hermann Beyer, *Apuntes sobre el Jeroglífico Maya Ek, "Negro."* *Anales del Museo Nacional de Arqueología*, 1:214 (5th epoch), 1925.

⁵ Hermann Beyer, *El llamado Calendario Azteca*, 116-117 (Mexico), 1921.

variation, the two black bars occurring in figures 15 and 16, white bars being most general, one black bar in figures 17 and 18, and the "steps" in figures 19 and 20. In addition, we have the two bars replaced by the sign for one in figure 21. Thus numbers one, five, ten and the "steps" must be of similar symbolic value. This is indeed the case, as I have proven for several of them that are fire emblems. The hieroglyphic character for the sound "i," (figs. 8-12), is actually composed of the same two elementary parts of Been, only they have been reversed.



FIG. 20. Been. Copan, Stela 1. B 4.

FIG. 21. Been, Palenque. Tablet No. 1.

FIG. 22. Landa's *i* for Been. C. Dresd. 10 c.

FIG. 23. Been. C. Tro-Cort. 112 c.

FIG. 24. Hand with Been. C. Dresd. 23 c.

FIG. 25. Been after Landa.

Now we understand why that glyph (fig. 22) has once replaced Been in a series of day-signs. It is, of course, a misfortune that this substitution occurs but once in the pictorial manuscripts, but it is not probable that it can be explained as a mere mistake of the ancient scribe, for in that case we could only expect erroneous day-signs, but not a non-calendric glyph. Therefore I believe the sign was intentionally substituted by the hierogrammat, who well knew the similar or identical meaning of both characters. A similar variant (fig. 23) also appears once, not as a day-sign, but as part of the so-called Been-Ik superfix, which too can be taken for the "i"-glyph, but in this case I do not insist upon this interpretation, for the Been signs in that rôle are very minute and show almost any possible combination and variation of their elements.

Been appears practically only as a day-sign or as part of the so-called Been-Ik superfix, (more correctly the compound represents Been and the central detail of Lamat). One of the extremely rare instances that do not belong to either of these two classes is figure 24, a hand holding or offering Been. Variants of this hand-glyph are to be found rather frequently in the manuscripts and on the monuments, with many other symbols replacing Been, all of which refer to the concept of fire. Thus we have the hook indicating a flame (for instance, Dr. Cod. 2), the head of a mythical serpent with flames (Dr. Cod. 65), the sun disk (Yaxchilan, L. 22), the sign Kan, "yellow," the emblem of the south (Copan, St. F), the brilliant sky (Dr. Cod. 53), the day-sign Ahau (Per. Cod. 5), the head of god C (Tro-Cort. Cod. 93c), etc.

After these general considerations on Been, we shall treat briefly the principal variations to be noted of its details. With this purpose in mind we shall divide Been into three elementary parts: the upper section, the separation line, and the lower section.

The typical Been has two loops or rectangles, generally in vertical position, although slightly inclined forms are not infrequent (figs. 3, 30, 21). Sometimes the loops have double outlines as in figures 15 and 17. Landa gives two parallel lines instead of loops (fig. 25). I have not noted this to occur again, but in one of the beautiful stucco hieroglyphs found by Frans Blom in Palenque, simple lines are given (fig. 26). Another similar form

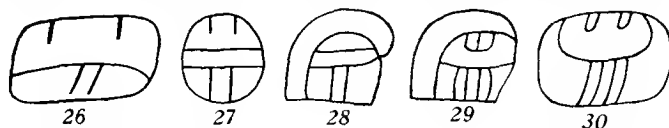


FIG. 26. Been. Palenque, Building XVIII.

FIG. 28. Been. Yaxchilan, Lintel 36.

FIG. 27. Been. Yaxchilan, Lintel 10.

FIG. 29. Been. Yaxchilan, Lintel 37.

FIG. 30. Been. Palenque, T. S., O 12.

is figure 27 from Yaxchilan, where this variant seems to be quite frequent. In figure 19 only one loop appears, while figures 18 and 28 are void in this part. In figure 29 the two loops join and the glyph becomes exactly like Kan, and it is only by examination of the context that we are enabled to say that it must represent Been.

The correct full middle part is undoubtedly as shown in figures 1, 15, etc., that is, two straight parallel lines. Very often, however, only one line is employed (fig. 17), as in other hieroglyphs that consist of two different elementary signs. The line is slightly bent in figure 16, figures 18 and 30 show it strongly curved, while in figure 3 the two lines are curved.

The variations of the lower part have already been spoken of in some detail. There is, however, one interesting feature still to discuss. While at the time of the Conquest Been is fairly uniformly represented with two blank bars, that is, four strokes, during the Old Empire much variation occurred. We have these four lines in figures 29 and 30, but more often we see only three as in figure 31, or two as in figures 26, 27, 28, and 32. The objection might be raised that my examples are taken from the Been-Lamat detail glyphs. Although these are of fair size in the originals, they may be regarded as simple projections on stone of written characters. There can, indeed, be no doubt that even large representations of hieroglyphs on the monuments retain peculiarities of handwriting. But in our case, fortunately two examples of painted glyphs (figs. 33 and 34) representing

the day-sign Been have been conserved, which show the same elision. Thus we are entitled to maintain that during the Old Empire more liberty existed in the execution of the form of Been. Why this was changed later on to a more strict observance of the two blank bars is comprehensible. The two

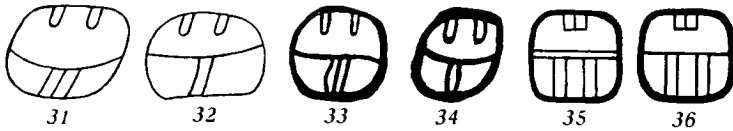


FIG. 31. Been. Palenque, T. F. C., O 4.

FIG. 34. Been. Pottery vessel from Chama.

FIG. 32. Been. Palenque, T. F. C., M 9.

FIG. 35. Been. Hypothetic original form.

FIG. 33. Been. Pottery vessel from Chama.

FIG. 36. Been. Hypothetic form.

and three stroke detail is identical with the lower part of Kan and thus errors were possible or, at least, the reading was not so easy. With the stricter form of Been the two glyphs are more distinct.

According to my hypothesis of the composite character of many Mayan hieroglyphs the original form of the day-sign Kan must have been like figure 35, that is, a glyph consisting of two elementary signs separated by a double line. The upper half contains a symbol resembling two teeth, the lower again contains the number ten in the form of two blank bars. Since, as in other hieroglyphs similarly constructed of two different parts, the double dividing line often is reduced to one straight line, the variant (fig. 36) must also be taken into consideration as a starting point.

There are, indeed, forms conserved that are only slight variations of figure 36. Thus figures 37 and 38, whose originals are to be found in

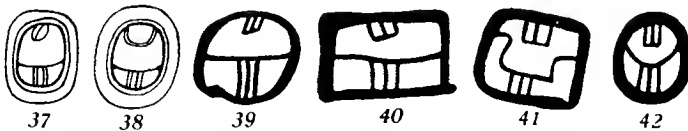


FIG. 37. Kan. Palenque, T. C., R 17.

FIG. 40. Kan. C. Tro-Cort. 21 b.

FIG. 38. Kan. Palenque, T. C., Q 8.

FIG. 41. Kan. C. Tro-Cort. 24 c.

FIG. 39. Kan. C. Dresd. 9 c.

FIG. 42. Kan. C. Tro-Cort. 83 b.

Palenque, have the four vertical lines in the lower half. In later times, however, the number of strokes was limited to three as in figures 39 and 40. Only as a rare exception does a Kan with four strokes occur in the Maya manuscripts. Kan is found very seldom on the monuments, but as nearly all the known specimens have four vertical lines, we are fairly certain in saying that this was the typical form in Ancient Empire times. Then the

situation was exactly the reverse from that of Been. Evidently in both cases the differentiation was made for the sake of clarity; Been and Kan became sufficiently dissimilar not to be easily confused at either epoch.

If a modern Maya scholar is asked to draw a typical Kan sign he almost surely will not represent one of the variants just treated, but one similar to figure 41, that is, one with a peculiarly bent middle line. The difference between this very characteristic form and Been is still more distinct. Although there exist in all three Maya codices specimens with the straight dividing line, forms with the bent line are much more numerous. This variant is not a late one, it was already known in ancient times.

The reason for the development of this peculiar form can be understood by studying variations like figure 41. The hieroglyph Kan evidently was written in the following order: first, the black outline, second, the "teeth," third, the dividing line, and finally the vertical strokes in the lower part. Having casually produced a rather large teeth-element, there was now danger that the two elements, teeth and median line, might coalesce, and in that case the "teeth" might be equal to the lower part. In order to avoid this fusion, the dividing line was either drawn as a simple curve, as in figure 42, or the more graceful swinging line of figure 44.

However, it is not only the modern student of Maya archaeology who employs the curved line as most characteristic for Kan. For the ancient scribes too this part of the glyph was most significant, and when there was little space at their disposition they thought this graphic detail alone sufficient to represent the sign in question (fig. 43).

Having once given to Kan this peculiar shape with the undulating middle line, which enables one to recognize it at first glance, we should expect it to become the form that definitely supplanted the older variant with the straight line that is more apt to be confused with other glyphs. Such is not the case, however, for in all three conserved manuscripts we find both variants mingled. This fact needs explanation, and I think it can be given by supposing that the genesis of Kan was still known in later times, thus preventing its becoming a mere conventional graphic character, as, for instance, our letters of the alphabet with the ancient Greeks or with us.

In the codices Kan appears most frequently with Imix, forming a double-glyph (fig. 44), which probably denotes "victuals," and the gods of life, fertility, vegetation, and rain (that is, the personified natural forces that produce human nourishment) have it among their explanatory hieroglyphs. Kan-Imix is, in the first place, the accompanying and representative glyph of god E, whom Schellhas identifies as the maize deity. Next

in frequency it is found with the old god D, who is a parallel to the Mexican Huehuetēotl, the fire god, the creator and sustainer of life. In his form of Tonacatecuhtli, he is the old maize god of the Nahuas. Some mythologic animals of the Mayas, like the frog, the dog, the vulture, the quetzal bird also have Kan-Imix among their hieroglyphs, and they too refer to the rainy season and vegetation.

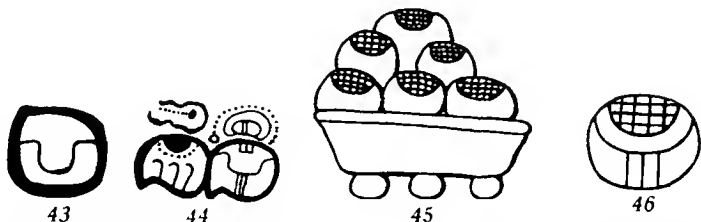


FIG. 43. Kan. C. Tro-Cort 108 c.

FIG. 45. Dish with symbols. Chichen Itzá. (After Maudslay).

FIG. 44. Imix-Kan. C. Dresd 12 b.

FIG. 46. One of the symbols Rectified drawing.

On a rectangular pillar of a building belonging to the Great Ball Court of Chichen Itza there appears before a deity with a tortoise shell, a receptacle with curious symbols which in the drawing published by Maudslay takes the form of figure 45. The general outlines of the object are accurate, but there are some incised lines missing on the rounded symbols which can be noted on the original. Figure 46 gives one of the symbols as it really is.

Now in the picture manuscripts there are drawn a great number of dishes and pots containing Kan symbols as food offerings before deities. The Chichen Itza symbols, however, are not identifiable representations of Kan, although their lower half is identical with that of some variants of this day-sign. While the Dresden and the Paris Maya codices show only Kan as an offering, the Tro-Cortesian manuscript, that is, the Yucatecan document, several times has Kan-Imix in receptacles (figs. 47 and 48). In

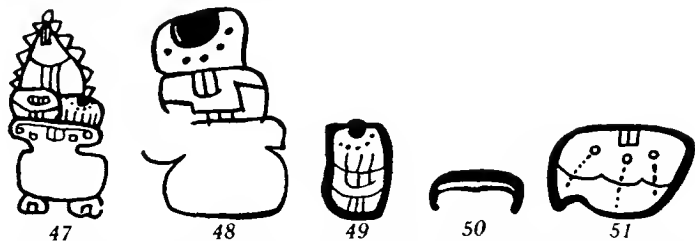


FIG. 47. Pot with Kan-Imix. C. Tro-Cort. 51 b.

FIG. 49. Imix-Kan. C. Tro-Cort. 29 c.

FIG. 48. Pot with Imix-Kan. C. Tro-Cort. 96 a.

FIG. 50. Stylized flame. C. Dresd. 6 c.

FIG. 51. Kan derivative C. Dresd 23 c.

my conception figure 46 is simply a contraction of both glyphs; Kan furnished the lower part and Imix the upper. Figure 49 may be regarded as a halfway-between form, where both signs are included in one black frame. In this case, however, the two glyphs are left entire, while in figure 46 a real fusion has taken place. An incomplete Imix is also found in figure 48, no doubt caused by the small size of the representation in the Troano manuscript, amplified here for the sake of clarity.

The similarity of significance between Imix and Kan as indicating "victuals," and their welding into one glyph, throws some light on the original meaning of Kan. Imix is composed of two elements, both of which are fire symbols. Kan has in its lower half a variant of the glyph for number ten, that is, two bars interpreted as fire producers. Its upper element means directly "hard," and indirectly "fire," too. That fire emblems represent the concept "victuals," "food," can be understood if we suppose that "fire" was a symbol for "life," which is very plausible on general reasons, and wherefore numerous indications occur in the Maya pictorial material. The life-sustaining matter, food, was, then, indicated by the fire or life symbols. The Latin *victualia* is derived from *vivere*, *victum*, and the German *Lebensmittel* is literally "means of life," revealing similar modes of thinking in different races.

In accordance with this fire symbolism, we note above the glyphs Kan and Imix (fig. 44) punctuated lines, that is, rows of sparks, and to the right a character that is again a reduced sign for ten. This latter symbol is sometimes replaced by figure 50, a stylized flame.

The original meaning of the teeth as "hard substance," made Kan especially suited to represent the ripe, the hard maize. This more specific significance as maize, Indian corn, has long been given to the sign by Maya scholars on account of several representations which are easily and sufficiently explained by that hypothesis.

Another hieroglyph of which two variants are given in the figures 51 and 52 has, *prima vista*, little similarity to the Kan sign, but the older variants (figs. 53-57) make it clear that it is nothing but the common Kan with three additional punctuated lines.

How this derivative originated can be shown by sufficient data to illustrate the principal stages of its development. The curving of the middle line of Kan was done, as we have seen, because there seemed to be insufficient space in its central part to avoid collision with the upper element of the sign. The curving, however, often became so exaggerated (see, for instance, fig. 41), that an unbalanced white space was left between the upper teeth and the median line. Details were inserted to fill this

space, as figures 58-60 illustrate, in order to attain a homogeneous graphic character. That the details are really meaningless but serve only an aesthetic function, seems to me proven by figure 61. Here the scribe had

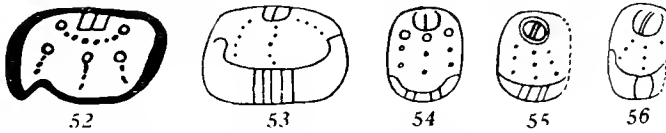


FIG. 52. Kan derivative. C. Dresd. 9a. FIG. 54. Kan derivative. Piedras Negras, Stela 12
FIG. 53. Kan derivative. Chichen Itzá. FIG. 55. Yaxchilan, Lintel 43.
Monjas, Lintel, 4.

FIG. 56. Kan Derivative. Palenque. T. F. C., C 13.

evidently drawn the glyph hastily, with the bending of the separation line too much to the right side. He was accustomed to putting the perpendicular strokes below the curve, and did it in this case too. The resulting blank space to the left he filled with an oval.

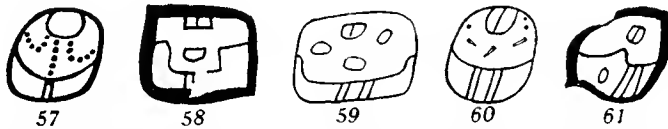


FIG. 57. Kan derivative. Vessel from Quiché Tomb (after Brinton). FIG. 59. Kan (part of Cumku). Tila, Stela A.
FIG. 58. Kan C. Tro-Cort. 24 c. FIG. 60. Kan. Palenque. T. C., Sculpt. Panel.
FIG. 61. Kan. C. Dresd. 48.

Through the repeated use of fillers the scribes became familiar with the practice of putting something in Kan. This led later to the creation of a definite variant which consistently had three dotted lines. This variant had a somewhat distinct or special meaning, in which it differs from the

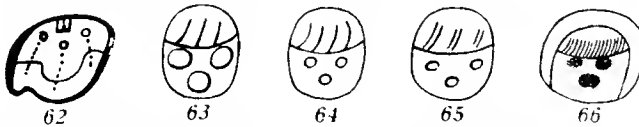


FIG. 62. Kan derivative. C. Dresd. 22b. FIG. 64. Yx. Yaxchilan, Lintel 43.
FIG. 63. Yx. Yaxchilan, Lintel 24. FIG. 65. Yx. Yaxchilan, Stela 12.
FIG. 66. Yx. Yaxchilan, Lintel 36.

simple Kan. The dotted lines accentuate the fire symbolism of Kan, perhaps eliminating thus its special significance of maize. The three lines of dots, however, influenced the sign in the sense that they gradually crowded out the lower detail, which already had often been reduced on

the old monuments (figs. 54-56), and the vertical strokes never appear in the specimens of the manuscripts. The horizontal middle line, however, was retained in most cases, although it was often modified (fig. 51). Figure 62 reproduces a specimen with the peculiar bending line of the Kan sign, while figure 52 presents one without the median line, but having added another punctuated detail near the element Teeth.



67



68



69



70

FIG. 67. Ix. Yaxchilan, Lintel 18.

FIG. 68. Ix. C. Dresd 73b.

FIG. 69. Ix. C. Dresd. 62.

FIG. 70. Ix. C. Dresd. 35c.

A similar process has been going on with the hieroglyph for Ix. Its ancient form (figs. 63-67), depicts an eye with upper lid and lashes, having instead of the ball the number three.⁶ The latest variants (figs. 68 and 69) possess besides, two or three dotted lines and here again these lines have diminished the size of the other detail. In the old form the eye-lid occupies almost half of the sign, while in the newer characters it is much reduced and in figure 70 even completely obliterated.

Concerning the morphology of both glyphs, the parallel between the transformation of the simple Kan into its more elaborate derivative, and the transformation of the simple Ix into the adorned form is clear. There is a difference, however, in the symbolic value of the simple and the enriched signs. The Kan derivative with its punctuated lines has evidently some different significance from the original sign, while we positively know that the Ix with dotted lines has the same value as the unelaborated form. Furthermore, the simple Kan and its enriched derivative occur in the codices, while the simple Ix was dropped, the elaborate form only appearing in later times. That the three dots of Ix were drawn black and not simply outlined as in Ahau was evidently done for the purpose of distinguishing precisely these two glyphs from each other. The adding of the dotted lines still more increased the difference; the Old Empire form of Ix is more similar to that of Ahau.

TULANE UNIVERSITY,
NEW ORLEANS, LOUISIANA

⁶ Hermann Beyer, *Symbolic Ciphers in the Eyes of Maya Deities*, A 23, 34 (Vienna), 1928.

THE DISTRIBUTION AND
PROCESS OF SUTTEE
IN NORTH AMERICA

By WILLIAM CHRISTIE MACLEOD

SUTTEE IN WESTERN NORTH AMERICA

ACTUAL immolation of the widow upon her husband's death has been noted in western North America only for the Shoshone and their very near kin the Comanche; and for the Coos, a tribe of Penutian affinities on the coast of Oregon. Of the Coos, Wells wrote in 1856 that formerly the corpse of the deceased husband was cremated ("burned"), "and the wife of the corpse killed and *interred* with the body." The difference in disposition of the two corpses is noteworthy. "This, and other like practices have been summarily abolished by the settlers," observes our informant.¹ It is, I think, likely that widow immolation was once more widely diffused in Oregon; and as for cremation, archaeological evidence demonstrates that it was once very widely prevalent along the west coast.

In recent years among the Shoshone a widower is free to remarry but a widow must mourn "until relieved of these restrictions by her mother-in-law or father-in-law."² But in 1861 Remy described an actual suttee among this same people; and his note is particularly valuable in that it indicates who it is that puts the widow to death. Apparently this person is the brother of the deceased husband, to whom the widow would belong under the regulations of the sororate-levirate practices. Remy writes:

"We were present at the burial of a petty chief. According to usage they slew one of his wives and two of his best horses on his tomb, to keep him company. . . . The deceased had selected his prettiest wife to accompany him on his last journey.

After two horses had been sacrificed the unfortunate woman stepped without flinching on the tomb of her husband, whose brother forthwith cut off her hair and then shot her through the heart.

We shuddered at the spectacle but the Indians remained unmoved. . . . Earth was heaped over the two bodies; the horses were buried beside them, and after hiding the victim's hair at some distance, all was over."

Burton describes a Ute funeral at Great Salt Lake of about this date in which two women, two captive children, and fifteen horses were put to death. Although there is no specific mention of a widow being one of the

¹ Wells, 602. He describes the funeral rites.

² Lowie, 281.

women, it would not be incredible if suttee also obtained among these near kin and neighbors of the Shoshone.³

Domenech⁴ it is who mentions suttee among the Comanche, a Shoshonean group who migrated southward in the early nineteenth century or late eighteenth. Domenech possibly is cribbing from an earlier source, which may give more details, if located. In fact, Bancroft knows of some other source which designates the favorite wife of the deceased as the one who is immolated (compare the Shoshone similar practice noted above). Domenech merely states that formerly "his wives" shared the same fate as a chief's horses at his funeral; that "they generally bury a warrior with his arms and his favorite horse." Neighbors,⁵ a still later source, observed that the wives of a deceased Comanche frequently took their own lives on the graves of their husbands. I take this to indicate that, notwithstanding the passing of compulsory suttee, the relatives of the deceased husband probably made life so unbearable for the widows that they were glad to go on to the husband in the otherworld.

SUTTEE IN SOUTHEASTERN NORTH AMERICA

The Chickasaw and Natchez

Milfort, a usually dependable source for nineteenth century data, states that the Chickasaw buried alive the widows on the death of their husband. In the absence of corroborative evidence Dr. Swanton is justifiably hesitant about accepting Milfort's evidence on this, thinking that perhaps Milfort had the Natchez in mind. But Natchez immolation of widows was by strangulation, not burial alive. I think other data indicate the reliability of Milfort's statement. In the first place, Garcilasso's narratives of De Soto mention burial alive in mortuary immolations on the lower Mississippi just below the Chickasaw territory.

De Soto died on the lower Mississippi near the town of Guaychoya. This was possibly the capital of the Taensa Indians, near kin of the Natchez. Elvas wrote that when the death of De Soto became known to the Indians the chief of this town brought two young men to the Spaniards, told them that it was the Indian custom to slay, on the death of a chief, "some persons who should accompany and serve him on the way"; and desired that the Spaniards should command "the heads to be struck off" from the two

³ Remy, 1 131. Bancroft cites Burton, but I have been unable to check his citation 577 or otherwise find it in my edition of Burton.

⁴ Domenech, 2 363; Bancroft, 1 522.

⁵ Neighbors, in Schoolcraft, 2 132.

young men that they might go and serve the dead De Soto. I doubt that we here find note of a Taensa method of immolation, possibly the Indians merely recommended to the Spaniards to follow Spanish methods.

But when the Spaniards left Guaychoya they were followed by a youth of about sixteen whom they could not drive away. On Ortiz' persuasion they interviewed the boy. He told the Spaniards that he was

a poor young man who had been abandoned from his infancy and to whom his father and mother had not left anything, so that one of the principal lords of the country moved with pity had received him into his house and had raised him with his children.

This benefactor had just died and it had been decided that this youth should be buried alive with the corpse of his deceased benefactor

because, they said, he was loved by him so much that he ought to accompany him to the other world to serve him there in his wants.⁶

Other later authorities on the Chickasaw do not mention suttee but do state that widows had to mourn for three years under the strict supervision of the deceased husband's relatives. The neighboring Creek, we are told, must mourn under such supervision for four years (in the late nineteenth century the period was reduced to several months); and, further, that the widow might be released from mourning by the brother of the deceased husband having intercourse with her.⁷ In a recent paper on the origins of suttee I have demonstrated that this levirate-sororate complex in its mortuary aspects is genetically linked with the practice of suttee; its presence here among the Chickasaw helps to lend further credence to Milfort, and makes us suspect that perhaps in olden days (De Soto's time) the Creek too may perhaps have had suttees.

Of the Natchez, it may be well to point out some details concerning their suttee practice which, because of their uniqueness, may prove to be particularly available for culture-historical comparisons.

First, Natchez suttee was double-suttee; that is, the widower was put to death on the death of his wife, as well as widow on the death of her husband. The origin of this "double suttee" I have explained in the above-mentioned paper.

⁶ For Milfort on the Chickasaw, see Swanton, *Creek Indian Social Organization*, 384, on the Taensa and the question of the identification of Elvas' Guaychoya, see Swanton, *BAE-B*, 43:258; for the Garcilasso story of the youth, see Garcilasso, *El Florida*, part 2, book 3, chapter 11.

⁷ Swanton, *Creek Social Organization*, 334, 382, 384.

Second, royalty was exempt from suttee, as were also all nobles. And yet it was only the spouses of royalty which were suttied! This apparent contradiction exists because Natchez social regulations required royal women to marry commoner husbands, and royal men to marry commoner women.

Third, it is a peculiar fact that a widow was exempt from the suttee obligation if she was suckling a child. But

we often see many who endeavor to find nurses, or who themselves strangle their infants so that they shall not lose the right of sacrificing themselves in the public square.

The "many" is legitimate in that suttee is practiced in the case of the brothers and sisters of the king as well as in the case of the king himself.

Fourth, the origins tradition of the Natchez states that suttee is for the purpose of having the spouse accompany the deceased to the other world; it is not, therefore, really "sacrificial" as appears to be the case in the mortuary sacrifice of infants at the funeral of royalty.

Fifth, all comparative data would lead us to expect that the strangulation of widow and widower would be performed by the relatives of the deceased. But Charlevoix and Le Petite (apparently copying from a common lost source) state that a commoner widower of a royal wife was strangled by his (and her) eldest son. This is rather inexplicable, if true. In mortuary immolations other than suttee the strangulation is by the sacrificed person's own relatives, the actual strangling being done by the sacrificed person's "nearest relative" who, in the case of a man with children, is his eldest son. The Natchez were matrilineal.⁵

COMPARATIVE NOTES

On map 1 I have included data afforded by other studies of mine cited in the bibliography. Suttee clearly is a development out of what I term the sororate-levirate mortuary complex wherein the widow becomes the property of the relatives of the deceased and is usually badly treated by them. Suttee originates when they decide, in spite of her relatives, to send her on to join her dead husband. I do not believe that suttee arose repeatedly out of this complex as an independent origination; it arose pre-

⁵ The Natchez data is from Le Petite and Charlevoix, cited in Swanton, BAE-B, 43: 140, 141, 143; and Dupratz, cited on 106; Penicaut, on 101; and Dumont, on 104, 151, 157.

Lawson, 298, says that there was no suttee in the coastal Carolinas. But Petyr Martyr (in Swanton, BAE-B, 73: 45) says for the South Carolina coast that widows were forbidden to remarry unless the husband were executed for crime.

have indicated the distribution of hook-swinging to show that in this (as in other important traits) there is indicated significant historical linkage of the two areas.

In the further Northwest Coast area I have not indicated the presence of the sororate-levirate mortuary complex, but perhaps I should. Mrs. Durlach's study shows the antiquity of the sororate and levirate among the Tlingit and Tsimshian, where it is more archaic even than the matrilineal exogamous clan and moieties. And for the Tlingit, at least, we have from Childe and Knapp the note that although the Tlingit widow is purified at the funeral of her husband and prepared for immediate marriage to the heir of her deceased husband (brother or nephew), if she refuses to marry him she must undergo several years of very severe mourning under supervision of her deceased husband's relatives. There is no note of the "death bundle" carrying by the widow north of the northern Kwakiutl, but conceivably this almost world-wide feature of the sororate-levirate mortuary complex was archaically present here. It would seem that among the Tlingit, at least, the complex had all but disappeared by reason of its becoming customary for the heir of the deceased husband to release the widow by marrying her immediately. Wherever the sororate-levirate mortuary complex appears, it seems allowable for the deceased husband's heir to so release the widow, and where this permissible feature became customary practice, as among the Tlingit, one can see how the mortuary aspects of sororate and levirate would gradually weaken so as not to be noted by the field worker.

I have indicated on the map the distribution in the further northwest of foundation sacrifice and two other features of northeast Asiatic origin to indicate merely the penetration into the northwest of Asiatic mortuary traits which might in due time prevent the spread of actual suttee into the remoter Northwest Coast cultures. Other traits indicated on the map need no explanation. Child sacrifice in North America, is, I think, a radiation, as also is suttee, of Central American culture.

Needless to say, blank areas on the map do not mean positive absence but merely that the traits have not been recorded, to date, for those areas.

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UNIVERSITY OF PENNSYLVANIA,
PHILADELPHIA, PENNSYLVANIA

PLAINS INDIAN TRIBAL
CORRELATIONS WITH
SUN DANCE DATA¹

By FORREST CLEMENTS

IN the past most efforts at the use of statistical methods in cultural anthropology have endeavored to show correlations between trait complexes or between such complexes and more or less arbitrarily defined levels of culture development.² The complete or partial failure of these trials rests not so much on the statistical techniques employed as upon the doubtful ethnological assumptions made by their authors.

For this reason it may be that the possibility of quantitatively treating ethnological data is not so hopeless as has been asserted by writers influenced by the ill success of such attempts in the past. Instead of correlating whole trait complexes whose independent nature is so much a matter of doubt, it is probably better to try correlations between ethnic groups on the basis of the elements of culture which they possess. In this way certain cultural similarities or dissimilarities between the groups will be quantitatively demonstrated and measured. These measurements may then be interpreted in the light of ethnological theory as regards their bearing on the question of diffusion and historical connection between the cultures of the various ethnic units.

Some time ago the present writer, with two colleagues, published an attempt to use statistics for objectively demonstrating special culture relationships within the culture area of Polynesia.³ The method used in this study was somewhat cumbersome and did not give its results in terms of a coefficient. In spite of the criticism evoked in certain quarters by this attempt it has been felt that the possibilities of quantitatively treating ethnological data were favorable and further work has been done in this direction.

¹ Part of a project carried out by the author as a National Research Council Fellow in Anthropology under the sponsorship of Dr. Clark Wissler of the Institute of Human Relations at Yale University. A full discussion and evaluation of statistical techniques in ethnology will appear in an early monograph in which correlational methods are applied to a wide range of culture in the California area.

² E. B. Tylor, *On a Method of Investigating the Development of Institutions*. JRAI, 18:245-269, 1889. J. Czekanowski, *Objektive Kriterien in der Ethnologie*. Korrespondenz-Blatt der Deutschen Gesellschaft für Anthropologie, Ethnologie und Urgeschichte (Hamburg), 42:71-75, 1911. L. T. Hobhouse, G. C. Wheeler, and M. Ginsberg, *The Material Culture and Social Institutions of the Simpler Peoples* (London), 1915.

³ F. E. Clements, S. M. Schenck, and T. K. Brown, *A New Objective Method for Showing Special Relationships*. AA, n. s., 28 585-604, 1926.

It is probably true that cultural relations between tribes are sometimes unconsciously exaggerated by reason of the mutual possession of some striking trait complex. The historical relations between the groups sharing this complex may come to be regarded by the ethnographer as much stronger than they really are because the similarity in outstanding traits may subjectively overshadow a multitude of trait differences whose nature renders them inconspicuous. The statistical method as outlined below is likely to minimize this type of error if due care is exercised in the selection of a representative sample of traits.

The data used in the present study are drawn from the Plains area and involve that series of trait elements which comprise the Sun Dance. Such elements constitute the statistical units and are the simple or specific traits which are combined to produce functioning trait-complexes within a culture. The necessity of reducing complex traits into their unit elements has been discussed elsewhere.⁴ A workable reduction of this nature is found in Spier's excellent study of the Sun Dance, in which he deals with the complex as found among 19 Plains tribes and analyzes it into a total of 92 specific traits. These 92 traits are listed and scored for presence or absence among each of the 19 tribes. The list and scoring are given in his paper and are not reproduced here.⁵ It is not the purpose to completely evaluate the Sun Dance and its tribal relations for this has already been done by Spier. The present aim is rather to try out the method described here and compare the results with Spier's general conclusions.

Taking this list as given by Spier the first step is to count the traits for presence and absence among each of the possible pairings of the 19 tribes. The number of such pairings is 171 and for any given pair of tribes, X and Y, the procedure is as follows: out of the total of 92 traits count the number present in both X and Y, the number present in X but absent in Y, the number present in Y but absent in X, and the number absent in both X and Y but present in one or more of the other tribes under consideration. These numbers are most easily tabulated in a diagram as on page 218. As is apparent a system of tabulation is carried out for each pair of tribes.

There are two coefficients which may be used in measuring the relationship of X and Y; the coefficient of correlation and the coefficient of associa-

⁴ F. E. Clements, *Quantitative Method in Ethnography*. AA, n. s., 30.295-311, 1928.

⁵ L. Spier, *The Sun Dance of the Plains Indians: Its Development and Diffusion*. AMNH-AP, 26: 464, 466, 473, 489, 1921. Certain traits in this list might be further split up but this has not been done. With the list intact, the conclusions reached by this method are comparable with the deductions of Spier. Such would not have been the case had the material with which he worked been altered.

TABLE 1

		X		
		Present	Absent	
Y	Present	Traits present in in both X and Y (pp')	Traits absent in X but present in Y. ($p'a$)	P'
	Absent	Traits absent in Y but present in X. (pa')	Traits absent in both X and Y. (aa')	A'
		P	A	N

X and Y = any pair of tribes or ethnic units. P = number of traits out of the total (N) present in X = $pp' + pa'$. A = number of traits out of the total (N) absent in X = $p'a + aa'$. P' = number of traits out of the total (N) present in Y = $pp' + p'a$. A' = number of traits out of the total (N) absent in Y = $pa' + aa'$.

tion. The coefficient of correlation, r , which can be used with data of this kind is the product-sum coefficient and is given by the formula

$$r_{xy} = \frac{(pp')(aa') - (p'a)(pa')}{\sqrt{(P)(A)(P')(A')}}$$

The symbols in this formula and in that for the coefficient of association are those used in the diagram above. This r possesses the desirable qualities of a coefficient of correlation as it varies from zero to unity, carries a *plus* or *minus* sign, and is not influenced by the size of N.

The coefficient of association, Q, is given by the formula

$$Q_{xy} = \frac{(pp')(aa') - (p'a)(pa')}{(pp')(aa') + (p'a)(pa')}$$

Q also varies from zero to unity, carries a *plus* or *minus* sign, and is uninfluenced by the size of N. However, the two coefficients are not comparable, for with the same set of data Q will always be larger than r . Furthermore, the two coefficients are different measures.⁶

⁶ For a derivation and full discussion of these two formulae see G. U. Yule, On the Methods of Measuring Association Between Two Attributes (Journ. Roy. Statistical Soc., 75: 579-642, 1912).

This difference is illustrated by the way in which the respective coefficients reach unity. If both pa' and $p'a$ are zero then r will be *plus* 1, or if both pp' and aa' are zero r will be *minus* 1. That is to say, all X (both presences and absences) must be Y and all Y must be X for r to equal *plus* 1. For r to equal *minus* 1 no X can be Y and no Y can be X. Thus an r of *plus* 1 means that X and Y are identical, while an r of *minus* 1 signifies that they are totally separate, having nothing in common.

This is not true of the coefficient of association for Q will not only equal unity under the conditions where r equals 1, but also when *either* $p'a$ or pa' is zero (for *plus* 1), or when *either* pp' and aa' is zero (for *minus* 1). Thus, if all X is Y (both presences and absences) but some Y is not X, the coefficient of association between X and Y will still be unity, although r will be less than 1.

The difference between the coefficients is illustrated in the present instance by the Plains-Cree and the Plains-Ojibway. Out of the 92 Sun Dance traits, 66 are absent in these two which are present among some of the other tribes. The Plains-Cree possess 26 traits and 10 of these also occur among the Plains-Ojibway. The latter, however, have no Sun Dance traits other than these 10 which they share with the Plains-Cree. Here is a case where all Plains-Ojibway traits are also Plains-Cree traits, but all Plains-Cree traits are not Plains-Ojibway. The r in this case is $+.56$ but the Q is 1.00 and we might infer that the Plains-Ojibway Sun Dance has been borrowed from the Plains-Cree, as the latter is the more developed. If, however, the Plains-Cree had had no other traits than those shared with the Plains-Ojibway then Q would still be 1.00, but r would also be 1.00, signifying complete identity of the two.

This contrast between the coefficients must be kept in mind when interpreting the demonstrated cultural similarities in terms of diffusion and historical connection. As r is only *plus* 1 when all the traits of X are also all the traits of Y and all the X absences are also all the Y absences, it is obviously a more rigid measure of culture relations than is Q. On the other hand, Q is easier of computation and may be used safely as a measure of culture relations if the conditions under which it approaches unity be kept in mind.

Both coefficients have been calculated for the Sun Dance material but only the full set of Q's are tabulated. The coefficients of correlation are given in pertinent instances when they are necessary to further the interpretation of Q. Table 2 gives the number of Sun Dance traits possessed by each tribe, the coefficient of association for each pair, and the number of traits shared in common by each pair.

TABLE 2

	Kiowa	Ute	Wind River	Crow	Blackfoot	Sarsi	Gros Ventre	Arapaho	N. Cheyenne	S. Cheyenne	Ogala	Ponca	Arikara	Hidatsa	Assiniboin	Plains-Cree	Plains-Ojibway	Sisseton	Canada Dakota
31 Kiowa		5	11	14	13	12	14	23	6	18	13	6	12	11	9	9	4	4	2
13 Ute	.17		10	6	5	2	9	10	3	7	7	5	4	4	4	6	3	3	1
27 Wind River	.32	.86		14	14	10	15	20	8	13	13	8	10	7	12	14	6	6	3
32 Crow	.28	.37	.53		18	11	18	18	6	15	16	9	12	12	13	14	7	4	4
42 Blackfoot	-.13	-.07	.12	.41		22	24	28	9	26	20	12	12	10	15	18	6	4	4
24 Sarsi	.46	-.36	.34	.34	.96		12	16	8	18	12	9	9	7	10	11	5	2	2
41 Gros Ventre	.05	.42	.36	.36	.49	.15		30	8	22	17	12	12	11	14	18	8	11	8
57 Arapaho	.39	.38	.68	-.07	.20	.15	.43		19	42	28	18	17	16	17	16	6	6	3
20 N. Cheyenne	-.13	.03	.27	-.05	-.01	.38	-.12	.89		19	11	11	6	10	6	7	4	3	1
49 S. Cheyenne	.18	-.05	-.17	-.17	.34	.54	.01	.81	.93		23	19	16	17	12	16	6	5	3
42 Ogala	-.11	.20	.03	.12	.05	.10	-.13	.18	.25	.15		23	16	16	12	11	5	9	5
26 Ponca	-.30	.25	.00	-.02	-.02	.28	.05	.23	.67	.53	.90		11	11	10	12	6	6	4
25 Arikara	.39	.10	.30	.38	.10	.31	.08	.18	.09	.35	.37	.48		11	8	10	5	5	4
24 Hidatsa	.33	.10	-.05	.42	-.15	.08	.00	.13	.64	.54	.52	.51	.52		9	11	4	5	4
22 Assiniboin	.18	.23	.63	.62	.56	.55	.48	.41	.18	-.01	.23	.45	.26	.41		17	8	7	4
26 Plains-Cree	.03	.52	.64	.55	.59	.41	.62	-.01	.20	.22	-.09	.51	.36	.49	.93		10	6	4
10 Plains-Ojibway	.15	.65	.61	.77	.31	.53	.71	-.05	.45	.12	.10	.64	.51	.34	.90	1.0		4	4
16 Sisseton	-.26	.33	.20	-.27	-.52	-.50	.53	-.56	.12	-.48	.24	.29	.12	.14	.50	.25	.59		8
10 Canada Dakota	-.36	-.20	-.00	.19	-.12	.18	.71	-.64	-.45	-.50	.14	.34	.30	.35	.44	.33	.82	.93	

The figures to the left of the tribal names give the number of Sun Dance traits out of the total of 92 possessed by each tribe. The decimal figures in the lower diagonal are the coefficients of association (ϕ) between all pairings of tribes, while the figures in the upper diagonal are the number of traits possessed by both tribes in any of the pairs.

If the tribes are ranked according to the number of traits possessed it will be seen that, generally speaking, those near the center of the area exhibit the greatest number and that this number decreases among those tribes toward the periphery. This "fading" from the center is not equal in all directions but it tends to agree with the orthodox conception of trait distribution due to diffusion from a center within an area. This fact, together with the larger number of elements possessed by the central tribes, led Spier to ascribe the elaboration of the complex and its probable origin to the Arapaho and Cheyenne.

If it is true that the ceremony originated here and diffused out to the other tribes, we should expect these central tribes to have a greater number of high positive associations than any other tribes within the areas. At the same time they should have the fewest negative associations. This is not the case.

Table 3 gives the tribes ranked according to the number of positive and negative associations possessed by each. All *Q* values of less than *plus* 0.40 or *minus* 0.20 have been ignored, as have also all *r* values of less than *plus*

TABLE 3

<i>Q</i>	<i>Number of Positive Relations</i>		<i>r</i>
Assiniboin . . . .	. . 12	Cree . . . . .	. . . . .9
Plains-Ojibway . .	. . . .12	Ojibway . . . . .	. . . . .9
Plains-Cree . . .	. . 10	Assiniboin . . . . .	. . . . .7
Gros Ventre . . .	. . 8	Gros Ventre . . . . .	. . . . .7
Hidatsa . . . . .	. . 8	Ponca . . . . .	. . . . .7
Ponca . . . . .	. . 8	Hidatsa . . . . .	. . . . .6
Wind River . . .	. . 6	Wind River . . . . .	. . . . .6
Crow . . . . .	. . 6	Crow . . . . .	. . . . .5
Sarsi . . . . .	. . 6	Blackfeet . . . . .	. . . . .5
N. Cheyenne . . .	. . 5	Sarsi . . . . .	. . . . .5
S. Cheyenne . . .	. . 5	S. Cheyenne . . . . .	. . . . .5
Arapaho . . . . .	. . 5	N. Cheyenne . . . . .	. . . . .4
Blackfeet . . . .	. . 5	Arapaho . . . . .	. . . . .4
Sisseton . . . .	. . 4	Sisseton . . . . .	. . . . .4
C. Dakota . . . .	. . 4	C. Dakota . . . . .	. . . . .3
Ute . . . . .	. . 4	Ute . . . . .	. . . . .2
Arikara . . . . .	. . 3	Arikara . . . . .	. . . . .2
Oglala . . . . .	. . 2	Oglala . . . . .	. . . . .2
Kiowa . . . . .	. . 1	Kiowa . . . . .	. . . . .1

Number of Negative Relations

Sisseton.	6	Sisseton	5
C. Dakota.	5	C. Dakota	4
Kiowa.	3	Arapaho.	3
Ute...	2	S. Cheyenne	2
S. Cheyenne	2	Kiowa	2
Arapaho	2	Ute, Crow, Sarsi, Blackfeet, N. Chey-	
Sarsi.	2	enne, Ponca, Ojibway.	1 each
N. Cheyenne, Crow, Blackfeet, Ponca			
.....	1 each		

0.20 or *minus* 0.10. Coefficients nearer zero than these limits have been regarded as insignificant so far as special relationships are concerned. Reference to the table will show that the central tribes (Arapaho, Cheyenne, and Oglala) are far from having the greatest number of high positive associations as well as the least number of negative relations. The ranking by both *Q* and *r* is approximately the same and both ranks are mutually corroborative.

The tribes having the greatest number of positive associations are the Plains-Ojibway, Plains-Cree, and Assinboin, closely followed by the Gros Ventre, Hidatsa, and Ponca. Neither the Assiniboin, the Cree, the Gros Ventre, nor the Hidatsa have a single negative coefficient within the limits of the table, while the Ojibway and the Ponca have only one each, both of which are low.

Such facts as these do not indicate any great relation between the central tribes and the others, for it is the northern tribes (excepting the Sisseton and Canada Dakota) who possess the greatest number of positive associations and fewest negative relations. The Sisseton and Canada Dakota are closely related to each other and to the Ojibway, Gros Ventre, and Assiniboin, but neither has any other high positive associations. On the other hand these two possess the greatest number of negative associations and are thus less related to the rest of the Plains than any other tribes. This lack of relation is rather odd in view of their proximity to the tribes of greatest relation. It is probably to be explained by the fact that the Sun Dance here contains few elements other than the essentials. The other tribes have a more complex ritual and it is to be inferred that these elaborations had either not reached, or had not been adopted by the Sisseton and Canada Dakota. Their high relation with the Ojibway is due to the mutual possession of only the basic elements of the dance. The Ojibway ceremony contains nothing not found among the Plains-Cree, although the latter possess additional elements. In view of their geographical proximity it seems rea-

sonable to assume that the Ojibway borrowed the dance from their Cree neighbors, and this inference is borne out by native tradition.

The closest tribal relations as measured by the coefficients closely agree with those given by Spier. Thus the Plains-Ojibway are most closely related to the Plains-Cree and both with the Assiniboin. Other highest relations are: Wind River with Ute and with Arapaho; Crow with Ojibway and Assiniboin; Blackfoot with Sarsi; Gros Ventre with Ojibway, Canada Dakota, and Cree; Arapaho with Cheyenne; Ponca with Oglala; Arikara with Hidatsa; Hidatsa with Cheyenne and Oglala; Ute with Wind River, Plains-Ojibway, and Plains-Cree; and Kiowa with Sarsi.

As Spier points out, the basic elements of the Sun Dance are shared by all, the variation occurring in the way in which the ceremony is elaborated. If all the tribes possessed only the essentials the relations would be approximately the same and in cases where the number of elements is not large the relations between those tribes are expressions of the mutual possession of only these essential traits. However, where the ceremony is more elaborate these basic elements are overshadowed by the added traits and the original relations are obscured.

In culture area speculations it is often tacitly assumed that elaborations originate in the same center as the original nucleus of any complex and diffuse out in successive waves. If this were true in the case of the Sun Dance we should expect the central tribes to have not only the greatest number of positive associations, but that these association coefficients would progressively decrease in value toward the periphery of the area. It has just been shown that this condition does not obtain in spite of the fact that the complex attains its greatest elaboration among the central tribes.

Regarding the area as a whole, reference to tables 2 and 3 will show that the Sun Dance relations as measured by the coefficients of association differ considerably from those to be expected on the basis of geographical position. A notable anomaly of this sort is the linkage of Kiowa with Sarsi, as well as the comparatively small number of high positive associations between the central tribes and other tribes in the area. This seeming inconsistency is probably due to the lack of a time factor in the interpretation. The data used represent a cross section of the Plains tribes at one time level and we can only infer the changes which took place during the development and diffusion of the ceremony. Moreover, the spatial relations of the tribes no doubt changed during this development. Viewed in this way, it is not surprising that the association coefficients should fail to agree closely with relations to be expected on the basis of the geographical positions of the tribes in historic times.

If we consider the tribes with high intercorrelations two apparently nuclear groups appear, the first being the Arapaho-Southern Cheyenne-Northern Cheyenne linkage, and the second, the Assiniboin-Plains-Cree-Plains-Ojibway grouping. If each is taken as a point of origin and the other tribes arranged in order of decreasing relation with the nuclear group, we get two different pictures of tribal relations.

Taking the Assiniboin, Ojibway, and Cree and counting only coefficients above 0.40, it will be found that, exclusive of their connection with each other, the Assiniboin and Ojibway each have relations with ten other tribes, eight of which are shared between them. Of the ten tribes related to the Assiniboin, seven are also related to the Cree, and of the ten linked with the Ojibway, seven are again shared with the Cree. Of the ten tribes related to the Assiniboin and Ojibway and the eight related to the Cree, six are linked with all three. In addition, the Ojibway and Cree are both related to the Ute, both Assiniboin and Cree to the Blackfoot, and both Assiniboin and Ojibway to the Sisseton and Canada Dakota. The Ojibway have a further relation with the Northern Cheyenne and the Assiniboin with the Arapaho.

Considering in the same way the other nuclear group of Arapaho, Southern Cheyenne, and Northern Cheyenne, it will be found that, exclusive of their relations with each other, each is linked to three other tribes, but no one of these three is related to all the nuclear group. The two Cheyenne tribes share relations with both the Ponca and Hidatsa and the Northern Cheyenne are related to the Ojibway. The Arapaho show no connection with any of these but only with the Wind River, Gros Ventre, and Assiniboin.

This evidence indicates a much stronger and more extensive grouping around the Assiniboin nucleus than around the Arapaho, the former group consisting of the Wind River, Crow, Sarsi, Gros Ventre, Ponca, and Hidatsa. It is, however, significant that of the six tribes related to the Assiniboin nucleus, five are also related to the Arapaho group. Of the two nuclear groups, the Northern Cheyenne and Ojibway are related to each other, as are the Arapaho and Assiniboin, but the coefficients are both low, being 0.45 and 0.41 respectively. There is thus little direct correlation between the two groups. On the other hand, the fact that of the six tribes related to the Assiniboin-Cree-Ojibway linkage five are also related to at least one of the Arapaho-Cheyenne nucleus, points to an indirect connection between the two nuclei. This suggests again that there may have been a period when the two groups were in closer connection than they were at the time level upon which the data were taken.

There is more or less agreement among anthropologists who have worked in the Plains field that certain of the tribes had migrated into their historical abodes not long before their discovery. The Kiowa, for example, are thought to have once lived much further north and their coefficients with the Sarsi, Arikara, Hidatsa, Crow, and Wind River lend support to this view. The Cheyenne and Arapaho are supposed to have moved to their present habitat from the northeast and were thus once in much greater proximity to the Hidatsa and Assiniboin than at present. At the same time the Arikara probably lived farther south near the Ponca, while the Gros Ventre were farther southeast and in closer contact with the Arapaho-Cheyenne group. That such a distribution of the tribes obtained at one time is partially substantiated by the fact that the tribal relations as measured by the coefficients of association are more nearly those which would be expectable on the basis of that distribution than on the basis of the tribal positions within historic times. This indicates that the Sun Dance originated before the tribes reached their present locations and tends to explain why the central tribes do not exhibit greater relations with the others than they do. It seems likely that the original nucleus of the ceremony did not develop in what is now the central part of the area, but came into being further north and east. The originators may have been the Assiniboin, or perhaps the Arapaho and Cheyenne, at the time the latter occupied the northeast section of the Plains. The analysis of the coefficients suggests that there were two main developments and streams of diffusion tracing from the northeastern origin, one being carried by the Arapaho and Cheyenne toward the southwest while the other spread south to the Dakota, Ponca, and Arikara and northwest, perhaps by way of the Assiniboin, to the Gros Ventre, Hidatsa, Crow, and Blackfeet, the Sarsi borrowing from the Blackfeet. The Kiowa may have received it at this time. As the Arapaho and Cheyenne moved south and west toward their present habitat this diffusion continued, the northern wave reaching the Cree and Ojibway while the Wind River and Ute probably first came in contact with the ceremony direct from the migrating Arapaho and Cheyenne. The originators meanwhile elaborated the ceremony, but these elaborations came too late to diffuse over the whole area, so that only tribes near to them took over the newer elements. At the same time other tribes introduced variations in adapting the dance to their own pattern. That these elaborations also diffused is shown by the fact that in nearly every case a tribe has its greatest degree of association with a close neighbor. This indicates that many of the additions are of recent origin, and further, that no one tribe was the sole

originator. On the contrary there were probably several centers of elaboration each of which influenced its neighbors.

The most intensive elaboration occurred in the Arapaho-Cheyenne group and the small number of high coefficients with other tribes possessed by this nucleus indicates that this intensive development was recent, almost certainly occurring after the Arapaho and Cheyenne reached their present geographical positions. On the other hand, the Assiniboin type of the dance remained fairly static in form and diffused more widely. The fact that the Assiniboin have the greatest number of positive relations with other tribes lends weight to the assumption that the dance here reached a certain degree of elaboration and then remained more or less fixed while diffusing. This would not be the case had the Assiniboin added a large number of new elements which would have overshadowed the original relations.

Broadly speaking, there would seem to have been three main developmental phases of the Sun Dance. The first was the original type which spread widely over the Plains from its northeastern source. Concomitant with this diffusion the dance underwent a degree of elaboration probably centering at or near its point of origin and diffusing south, north, and west. This phase is illustrated by the tribes affiliated with the Assiniboin. The Arapaho and Cheyenne carried this form of the dance with them and it passed into its third phase in the intensive elaboration apparently initiated by these tribes after their migration to their present location.

SUMMARY

It seems reasonable to assume on the basis of the relations expressed by the association coefficients that the development of the Sun Dance did not occur in the present center of the Plains area, although the most extensive and recent elaboration did take place there. The ceremony probably originated among the Arapaho or Cheyenne at a time when they occupied a position northeast of their present habitat, but its main development among these tribes came after they had reached the location they occupied when first discovered. Meanwhile the Sun Dance underwent adaptations to the local pattern of the tribes with which it came in contact, each point of such change serving as a potential source from which the new elements might diffuse.

What we have here then is not the orthodox picture of a culture area with successive waves of diffusion from a single center, but rather a number of points of origin scattered over the whole Plains area, each with its own zone of influence gradually merging into the neighboring zones. Given the original trait nucleus, the development of the ceremony became a matter

of local adaptation and secondary diffusion. These conclusions agree, in the main, with those of Spier.

The advantage of the method described here lies not only in its ability to demonstrate culture relations concretely, but to express the degree of such relations on a scale. At the same time it provides material for inferences of time sequence and brings the dynamic phenomena within the culture area into more explicit relief.

INSTITUTE OF HUMAN RELATIONS, YALE UNIVERSITY,
NEW HAVEN, CONNECTICUT

THE INDIAN OFFICE PAYS A DEBT

By MAURICE G. SMITH

EVERYONE who has read Mooney's monograph on the Ghost Dance probably remembers the dramatic story¹ of Apiatan, the Kiowa, who in 1891 helped stem the diffusion of the dance among his tribe and other Southwestern Plains Indians. For his services, as the government viewed the matter, in reporting to his people against the Messiah, Apiatan received a medal and was promised a house to cost not more than five hundred dollars.

For this substantial reward Apiatan waited in vain for almost forty years. But he received five hundred dollars to improve his present home in July, 1930. Largely through the efforts of Superintendent John A. Buntin of the Kiowa agency (Anadarko, Oklahoma), the matter had again been brought before the Indian Office in the spring of 1930, and Commissioner C. J. Rhoads approved the claim, as it had now become. I have been told that in 1891 Commissioner Morgan approved the promise made to Apiatan by Superintendent Adams of the Kiowa agency, but that he had been overruled by his superior, the Secretary of the Interior.

The decision of Commissioner Rhoads was the subject of comment by the Indians of the Kiowa agency when I visited them during the summer. But not one of them mentioned what my economist friend, Dr. F. L. Vaughan, has told me—that a dollar today is worth just about half of what it was worth in 1891.

Apiatan lives near Carnegie, Oklahoma. He has always been among what the Indian Office calls "progressive Indians," although for a long time he was a votary of the peyote cult. Now, however, that is a thing of the past with him.

Although he does not write English, Apiatan sent the following letter on April 23, 1930, to the Commissioner of Indian Affairs:

"I am a Kiowa Indian going on 73 years of age. I was selected as a chief² by my people many years ago and have been loyal to the Government and worked for many years for the uplifting of my people. I have encouraged them to put their children in school and to take up their work in farming and other things the same as white people.

¹ BAE-R, 14: 908, 909, 911-914. Cf. H. L. Scott, *Some Memories of a Soldier*, 149-152. The name on the government rolls is Ahpeah-tone, which, regardless of its spelling, sounds nearly as it is pronounced.

² This occurred in 1894. Cf. General Scott's account of the event, *Memories*, 157-158.

"In 1890 the doctrine or teaching known as the Messiah Craze spread among the Indians throughout the United States. As you have no doubt read, false teachers among our people were telling the Indians that Jesus was coming on a new earth, something like a great avalanche which would push the white people off into the sea and drown them and restore to the Indians their buffalo, deer, wild turkey and all things they had before the coming of the white man. They taught that all the Indians would have to do to be saved was to accept the belief and actively engage in dancing and the ceremonies that went with it.

"There was much excitement among the Indians of my tribe as well as the other tribes throughout the United States. Upon my own initiative, approved by the Indian Agency, I made a trip to Pine Ridge, South Dakota, looking for the Messiah. He was not there and I was told to go to Shoshone, Wyoming. He was not there. I was then told to go to Fort Hall, Idaho and He was not there. When I left there I was told to go to Pyramid Lake, Nevada. When I reached there I was told that Jesus was in a lodge near-by. I dressed up and approached the lodge with a deep reverential feeling.

"A Piute Indian by the name of Jack Wilson was in the tent and claimed to be the Messiah. After remaining with him four days I found out that he was a fake and that there was nothing to this Messiah Craze story. I then returned to the Kiowa Reservation and had much to do with convincing my people that the Messiah Craze teaching was all false. I met the Arapaho Indian by the name of Sitting Bull who was greatly exciting the Cheyenne and Arapaho and other Indians in this part of the country. I told him there was no truth in his teaching and that he ought to stop it. He did at my request stop his work among the Indians.³

"General Hugh L. Scott was detailed by the War Department to work among the different tribes of Indians in this part of the country during the excitement caused by the Messiah Craze. He knows the part I took in helping convince my people that they were being misled. I invite your attention to pages 149-152 of the book written by General Scott, entitled "Some Memories of a Soldier—Scott." I quote the following from page 151 of the book: 'I represented this to the President, who presented him with a silver medal, and Indian Commissioner Morgan promised to build him a house—a promise that was never fulfilled.'

"As stated, I did receive the silver medal but never received the house or anything in lieu of it which was promised me by Commissioner Morgan."

³ But the Caddo, Wichita, and allies did not accept Apiatan's adverse report. See the story of the council held at Anadarko upon Apiatan's return from the Messiah (Mooney, 914). I was told in June, 1930, that a few old men in these tribes still hold Ghost Dance doctrines.

MAURICE G. SMITH

By HUTTON WEBSTER

DR. MAURICE G. SMITH, Associate Professor of Anthropology in the University of Oklahoma, died of typhoid fever at Norman, Oklahoma, on October 22, 1930. He pursued his undergraduate work at the University of Nebraska, where he specialized in economics and sociology and later in social anthropology. In 1923 he received the degree of Master of Arts from the same institution. His master's thesis, "The Council among the Plains Indians," was so creditable a performance that it was published as a separate monograph in the University Studies. A fellowship in the Robert Brookings school at Washington, D. C. enabled him to continue graduate work until he received the degree of Doctor of Philosophy in 1927. He was called in that year as Assistant Professor at the University of Colorado, where he organized the instruction in anthropology. In 1929 he went to the University of Oklahoma. Here he speedily took up field work among the Indians of the state and collected a considerable amount of new material, especially on the peyote cult. He also found time for various contributions to the *American Anthropologist* and to other journals. Though slight in character, they evinced a critical and inquiring turn of mind. Dr. Smith was a young man of real promise, and his untimely death is a loss to anthropological teaching and research in this country.

BOOK REVIEWS

METHODS AND PRINCIPLES

An Introduction to Physical Anthropology. E. P. STIBBE. (New York: Longmans, Green and Co., 1930. 199 pp., 42 figs., map \$5.00.)

This is a sound and useful little textbook, or more exactly, what in England they call a cram book for degree examinations. In consequence, it seems a bit outlinish for a discussion text on which to base a course in an American college. Half the volume is zoological and evolutionary, a fifth palaeontological (including fossil man and flint implement types), the remainder "ethnological," that is, concerned with anthropometry and race. The primates and the brain receive the attention expectable from a University College man; and the account of evolution stresses the aspects so well developed by Elliot Smith. Chapters 4 and 5, on the skull and skeleton, consist of thirty pages dealing with man, faced by an equal number treating the corresponding features of anthropoids. This arrangement, though somewhat awkward for the reader, has much to commend it to the student. The races recognized are six: Mediterranean, Alpine, Nordic, Mongoloid, Negroid, Australoid. The map wisely leaves considerable intervening tracts unassigned, but has some strange features: Alpines in Mexico and Peru, for instance, the Dravidians Australoid, and the Polynesians Mediterranean, for which there is at least respectable precedent. Ainu and Bushmen are not mentioned. Neither is the Brunn race; nor blood, nor embryology. Omissions must of course be made in a compact volume. The above are such as might be expected to be made by an anatomist interested in evolution; they are cited here, not censured. All in all, the work seems fairly proportioned, and is certainly accurate, clear and concise. The reviewer however anticipates that the publisher will find himself mistaken in thinking he can sell any considerable number of copies of a textbook in America at two and a half cents per small page with inexpensive illustrations.

A. L. KROEBER

Primitive Man as Philosopher. PAUL RADIN. (New York: D. Appleton and Co., 1927. 402 pp.)

This book has been rather overlooked by anthropologists, not for lack of interest or merit, but because its thesis is taken for granted more generally than its author believes. This thesis is that the distribution of temperament and ability is much the same among primitive and civilized peoples, that consequently backward communities also possess their quota of tender-minded, reflective, spiritual, and genuinely pious individuals, and that the picture of primitive life is incomplete unless cognizance is given to these thinkers and rebels as well as to the more prosaic and practical majority. The author's original title, "The Intellectual Class among Primitive People," would therefore have been more accurate than the publisher's title finally chosen, with its implication that primitive man is generally and *ipso facto* philosoph-

ical. Nothing could be more foreign to Dr. Radin's basic idea of personal differentiation within every culture. And this idea he has set forth lucidly and illustrated with abundance of quoted song, speculation, myth, and saying.

Practically no ethnologist accepts the Lévy-Bruhl point of view, which Dr. Radin repeatedly refutes. Some have explicitly denied it. Most of our sinning, it seems, has been by omission. In the quest for new materials, the standard or average of a culture has obviously to be got first. Too many of us have stopped there, it is true: sometimes because of lack of insight or interest, but again because time and opportunity were lacking. Not every field anthropologist has been able to study intensively and repeatedly a culture as rich as that of the Winnebago, and so well fermented by two hundred and fifty years of alien contacts and at the same time so tenaciously conserved. Wissler encountered a similar people among the Dakota, but not among the Blackfeet. California held similar tribes in the south before ethnologists got to them; but not in the north, where they survived later, and it seems doubtful whether they could have been found on the Northwest Coast. This is not to deny that differences occur everywhere, of the sort which Dr. Radin affirms; but their degree also varies considerably, irrespective of investigator; witness Hawaii and Mangaia versus Tonga and Samoa.

The principal influence of the book will apparently be among others than anthropologists; and there its effect will be corrective as well as stimulating. It appears already, for instance, to have made a definite impression in teaching of cognate subjects.

The reviewer owes Dr. Radin an apology. He criticized his *Story of the Indian* as too wholly lacking in documentation. This is true for ethnologists of profession: they do exact evidence for a historical reconstruction, while they would spare most of it in relation to a thesis which fundamentally they accept. Dr. Radin was evidently writing for a wider audience, and with that in his mind, he chose wisely. The philosopher, the historian, the intelligent layman could not check and balance the evidence for the reconstruction, and would be wearied by it; whereas in the present work they will be interested and refreshed by the full, varied and well translated source material. The reviewer confesses to more personal stimulation received from the new if unsubstantiated visions in the "Indian;" a larger circle will probably continue to absorb more from the "Philosopher."

A. L. KROEBER

NORTH AMERICA

Notes on Hopi Clans. ROBERT H. LOWIE. (Anthropological Papers of the American Museum of Natural History, vol. 30, pt. 6, 1929.)

Hopi Kinship. ROBERT H. LOWIE. (Anthropological Papers of the American Museum of Natural History, vol. 30, pt. 7, 1929.)

The early students of the life of the Pueblos paid little attention to the subject of clanship, and still less to kinship—Cushing, the Stevensons, Dumarest, Fewkes,

Voth, Stephen. In their day, analysis of social relationships had not the importance to the student that it has now; kinship nomenclature was not systematically recorded (except by Stephen); the genealogical method of testing the use of terms was unfamiliar, lists of clans were used quite uncritically; tribal history was even based on myths of migration by clan. In several Pueblo languages the same term "people" is applied by the townsmen to clan and to ceremonial group or society, so societies came to be listed with clans or attributed as a system of clanship to a culture actually without clans, in the case of the Tanoans of Taos and Isleta.

A new leaf of observation was turned by Kroeber with his study of kin and clan at Zuni. Then followed study in the eastern pueblos by Harrington, Parsons, and Goldfrank, and of the Arizona Tewa by Freire-Marreco. In 1915 and 1916 Lowie studied the Hopi, and his notes on kin and clan are now published. They are a welcome contribution to the general subject of social classification and the more opportune because in recent years it has become apparent that the clan as an outstanding social unit among the Pueblos centers in the Hopi. To the east and northeast the clan yields to the society or to the moiety.

Lowie gives a clan census of the Hopi of First Mesa (Walpi and Sichumovi which should be described, by the way, as a suburb of Walpi; not having its own winter solstice ceremony, it is not an independent town) and of two towns on Second Mesa, Mishongnovi and Shipaulovi. The interrelations of kin are given and Lowie concludes that the clan is basically a maternal family or lineage, various factors making from time to time for the combination of two or more lineages in one group. These combinations have been baffling, for a combining lineage may bring another name to the group or may become wholly absorbed. "One of the functions of a clan is to absorb remnants of a linked clan." Had Dr. Lowie pursued his Hopi investigation, he would undoubtedly have looked further into the matter of these so-called linked clans or pseudo-phratries. Information about exogamous rules between linked clans is contradictory, and their ceremonial connections remain obscure.

As Lowie points out, the principle of connection between Hopi clan and society is that the chieftaincy of the society is held within the clan or maternal lineage, the supreme fetich of the society, the *tiponi*, is cared for in the maternal house of the lineage where meetings of the society may also be held. The only exception to this hereditary principle of office possibly occurred, writes Lowie, in the case of Töno'e, the Town chief and chief of the Flute society. He was said to have succeeded his father, instead of a maternal uncle or brother; still it may have been not his blood father, adds Lowie, but his ceremonial father who was referred to. Exactly, for as Stephen records in his still unpublished journal, Tono'e's predecessor, Simo, was a member of the Singers' society, as was Töno'e, and it is quite probable that Simo was ceremonial father to his junior clansman. Simo belonged to the Deer lineage of the Horn clan, Töno'e belongs to the Millet¹ (called Grass by Stephen) lineage

¹ The terms for millet and flute are similar in sound and my guess is that the Millet lineage has sometimes been translated as the Flute clan.

of that clan, the lineage in which the Flute society chieftaincy is "handed." How had the chieftaincy passed from the Millet lineage into the Deer lineage? When Simo's predecessor died, Hayi was the proper successor, but Hayi and his family could not be found,—during a famine they had migrated to an eastern pueblo. So another lineage within the Horn clan had to be turned to. Now this lineage had become Navaho. Simo's maternal grandmother had married a Navaho, and so had Simo's mother. Simo's older brother wished to remain Navaho, so Simo answered the call to become the Flute society chief and Town chief—a three-quarter Navaho became the "Chief of the Houses" of First Mesa through rightful succession! But when Simo died in 1892 why did not one of his nephews succeed him? Because Hayi and his sister's family had meanwhile returned to First Mesa and the succession returned to the proper lineage. Why not to Hayi who survived Simo? Because Hayi was a member of the Agave society and as such ineligible, if not to the Flute society chieftaincy, to the Town chieftaincy.² The association between these chieftaincies is close, as appears in the dramatization of the Flute ceremony. It is not absolute, however, since the Town chief is chosen by the hierarchy. At Simo's decease there were several candidates for the town chieftaincy, all of the Horn clan but not all of the Millet lineage. Some were of the Deer lineage, one was of a lineage in the Horn clan not specified. Then there were two Millet men who were married away, to Second Mesa and to Hano, and their foreign marriages counted against them. And so Tono'e, although he was not a candidate, was chosen.

Without historic records what chance is there for the Hopi observer to understand completely the relations between clan and society, or rather between clan and society chieftaincy? Mere membership in the society, as Lowie shows, follows other principles. As at Zuñi and in the eastern pueblos, there is initiation for cure and for trespass. In the Flute society there is initiation for lightning shock, to one's self and to one's field. There are suggestions that members of the clan in which a society chieftaincy is held are potentially members of the society, without other experience; but further information on this point is desirable.

Desirable also, to return to the question of chieftaincy, is information about members of the chieftaincy other than the chief. Altar properties other than the supreme fetich are also "handed" and also entitle or obligate their trustees to perform ceremonial functions. And then there are the functions performed by members of other clans because of conceptual relations—the association of the Sand clan with altar sand, of the Badgers with medicine, of the Coyotes (Charcoal or Cedar wood) with fire, of the Tobacco (Rabbit) clan³ with smoking, etc. About

² Neither Lowie nor I had known of this rule, but it is quite credible. The Agaves are a scout or war society and the Town chief among the Pueblos is a peace chief.

³ Incidentally I note that Hani, the Tobacco clan chief, who was chief of Singers society and so ex-officio paramount chief of the Wowochim ceremony (oddly referred to by Lowie as Harvest festival) was entered in the early lists as Lesma. Qutqa, an important figure today on First Mesa, as Lowie states, figured in those lists as Mashakwaptiwa. Needless to say such

these relations we also need more information. That some clan names on the other hand derive from ceremonial functions we do know—the Horn clan is called Flute from their trusteeship of the Flute society; Red-headed men, a term applied at Mishongnovi to the Cedar wood-Fire-Coyote group refers to its association with Masewa, the Fire spirit; Chakwena, a term applied to the Mustard clan, refers to their clan mask; Sage (*sirañi*) is probably applied to the lineage of the Cloud-Corn clan in charge of the Lalakon ceremony.

It is my feeling, and I believe Dr. Lowie's also, that much of the intricacy of the Hopi clanship system is due to the permeation of the ceremonial life by clanship. As clans diminish or die out "legal fictions" are resorted to because of ceremonial exigency. Clan dynamics were a private affair but for the ceremonial functions of the clan which are for the general good and so are watched over jealously by the group at large or by their hierarchy. The clan may be reinforced (as in the case of the linked clans) or kept from scattering because of its ceremonial functions. Recall, for example, how the Tewa Cottonwood family was summoned back to the mesa by three of the high chiefs because the woman was the war chief's sister and in charge of a war kachina mask. (A Pueblo Indian Journal, 39.) The recent succession in the office of Singers' chief and paramount chief of the Wôwôchim ceremony may be another case in point. Hani died about 1923 and was succeeded by Námuki.⁴ Now if Hani was actually the only surviving member of the Tobacco clan (Lowie, 314), Námuki of the Rabbit lineage was his sister's daughter's son by fiction only, i.e., linkage of Tobacco and Rabbit clans.

Whether interwoven with ceremonialism or not, clanship must ever be a dynamic phenomenon. Through the almost inevitable conditions of observation, however, it is generally described in static terms. The observer comes and goes and does not return. But Hopi records extend, if intermittently and by various makers, over a period of forty years. When this history comes to be studied as a dynamic whole, Notes on Hopi Clans will be found to be a valuable part of the record.

The special problem that Lowie presents in his study of the kinship nomenclature of the Hopi proceeds from the standing controversy about the respective influence of social factors and of linguistic factors in determining the nomenclature. In the Hopi Lowie sees a test group. The Hopi are Shoshonean in speech but in their clanship system they are not typically Shoshonean. Did the adoption of a clan organization produce in Hopi nomenclature the results usually associated

plural naming is very confusing to the Hopi historian. My information comes from Stephen's Journal in which is given also the relationship of Qutqa, Bear, to Winuta, Reed, Horn society chief, and not "uncle" to Qutqa, but mother's mother's brother's son. Mile, Bear, was Horn society chief. His sister was Masaiyonsi and her daughter's son was Qutqa, successor to his maternal great uncle. But when Mile died, Qutqa was too young for office, so Mile's son, Winuta, became regent, so to speak, leaving the tiponi in Masaiyonsi's house, the maternal Bear house. Regency is even more confusing than plural names.

⁴ J. H. Steward, Notes on Hopi Ceremonies in their Initiatory Form in 1927-8. AA, 33: 56-80 1931.

with clans? After giving an analysis of the Hopi kinship terms, Lowie points out that the Hopi on the one hand have lost two distinctive Shoshonean traits in nomenclature, reciprocity and differentiation of maternal and paternal grandparents, and that on the other hand they have the classification usually associated with clanship, father's brother and father, mother's sister and mother, child and parallel sibling's child, with these terms extended to clansfolk and with a tendency to override the generation principle, e.g. the father's sister's female descendants through females are all called by the same term as the father's sister, or again the father's sister's husband is called grandfather, his son (the speaker's father's sister's son) being called father; and he concludes "that linguistic conservatism has been of slight importance in the history of the present Hopi nomenclature and that the clan concept has exerted a deep influence upon it."

Lowie's impression that ceremonial privilege, better say trusteeship, descends to younger brother in preference to sister's son is corroborated by Stephen who states definitely that a younger brother is preferred in theory to a sister's son. Stephen adds that in theory also there is a kind of primogeniture, the eldest son of the eldest sister is heir. In practice, a younger son may be selected as fitter, or the son of a junior sister.

Lowie gives interesting new data on the existence of a sort of joking-relationship between children and their grandfathers or father's sister's husbands. To his account of the special relationship with the father's sister's or relative so classed, many more data could be added both from A Pueblo Indian Journal and Stephen's Journal. Some evidence of cross-cousin marriage was found on First Mesa by Freire-Marreco and by Parsons. From his own inquiries Lowie thinks that the case for this type of marriage preference is not established. The possible bearing of the so-called "women's fight" at marriage upon a sometime occurrence of cross-cousin marriage Lowie does not discuss. Why should the groom's "aunts," his father's kinswomen, make a mock assault upon the household of the groom's mother, to insult the bride?

ELSIE CLEWS PARSONS

Tepoztlan: A Mexican Village. ROBERT REDFIELD. (Chicago: University of Chicago Press: Publications in Anthropology, Ethnological Series, 1930. 247 pp., 20 pls. \$3.00.)

Redfield's notable book can perhaps be fairly characterized as a miniature *Middletown* dealing with an Aztec and Spanish speaking pueblo of some 4,000 souls in northern Morelos, not far from Mexico City but without wagon roads and comparatively isolated. In spite of the greater heterogeneity of Mexico, Tepoztlan is probably as typical a "sample" of that country as Muncie is of the United States. The heterogeneity is due to bilinguality and duality of races, one of them long rooted in the soil, the other entrenched there four centuries, a full three of them free from all contacts with the world except through the Spanish mother country. The curious hybrid result is Mexican culture. Redfield describes the Tepoztlan specimen of it

analytically, sensitively, sympathetically, with full appreciation of its values, both intrinsic and in their interplay. With that, the study is objectively documented; more fully so, it seems, than the author's modest disclaimer might lead one to suppose; sufficiently, at any rate, for a work which pioneers its field. This is not to decry by comparison the importance of the sociological part of Teotihuacan. Gamio's work is formally more ambitious, but Redfield's is compacter, more beautifully organized, more effective in its impression, at least on non-Mexicans. Teotihuacan is monumental, Tepoztlan should set a precedent. Perhaps a culture like that of Mexico can be best described by the right foreigner just because he is not so enmeshed by his feelings.

The chapter titles outline the scope and in part the point of view of the book: The Mexican Folk, the Village of Tepoztlan; the Material Culture, the Organization of the Community; the Organization of the Village; the Rhythms of the Social Life; a Tepoztecan Book of Days; the Ritual of Life and Death; the Division of Labor; Magic and Medicine; Literacy and Literature; the Santo and the Veterano, the Folk in a City World; the Intermediate Culture. The interest is never in the culture per se alone, always much in the community that carries the culture and in the relation of the individual to this community culture. Historical and geographical aspects are not ignored but touched as lightly as possible. There is a map of the pueblo, but none of the municipalidad of which it is the heart. Whether an element of the culture is Spanish or Aztec in origin is always indicated if possible; whether it became established as a result of the Conquest, in the long Colonial period, or since Independence, is often not even inquired into. Nor has archive documentation been seriously used. The interest is not in how things came to be in Tepoztlan, but in how they interact now. The approach thus is dynamic. But it is the dynamics of today that are examined and revealed, with no doubt a sub-liminal sense of tomorrow; not the dynamics of the long past of which the today is the making. Here again the parallel holds with Middletown and fails with Teotihuacan. It is the changes occurring in the Mexican folk culture due to the spread of city ways, the conflicts between correctos and tontos, that Redfield sets out primarily to study as an example of how primitive man becomes civilized, the peasant urbanized. Social change is his theme. Ethnology he links with archaeology as history, and sets off from social anthropology (in the Radcliffe-Brown definition), which he sees as the study of process in culture change.

The volume accordingly might be placed thus in a series: the old-line generalizing sociology; Ogburn's *Social Change*; *Middletown*, which is ethnological in its field technique, but still concerned with ourselves, *Tepoztlan*; Radcliffe-Brown, who seeks laws, but deals with primitives untouched by our civilization, Malinowski, who not only is but wants to be ethnographer; Boas, who deals almost solely with function or process but insists on calling it history; and beyond, perhaps the majority of anthropologists, who, avowedly or not, do deal with historical problems.

Partly because of the leaning toward sociology and partly because of the relative unfamiliarity of the subject matter, it may be anticipated that some anthropologists

will perhaps appreciate Redfield's volume less than students in other circles. It is likely however to influence them more than they realize. Its originality, saturation, and skilled scholarship, expressed through the medium of a style both restrained and felicitous, render it a landmark and should make it a model.

A. L. KROLBER

Bulletin of the Texas Archaeological and Palaeontological Society, volume 2. (Abilene, published by the Society, September, 1930. 99 pp., 26 pls.)

This volume contains ten brief archaeological reports, nearly all of them based on new data. There are reports on the following: sites and artifacts in the Nueces area, coast pottery, burned rock mounds in southwest Texas, shelter caves about El Paso; also, Canadian valley, Coke county, Black and Grand Prairies, Abilene. It is clear that Texas, like California and the Atlantic slope, is rich in ancient remains, though not in general of a showy or "attractive" type, and that regional variation is definite. With the complete disappearance of local ethnology, the archaeology becomes doubly significant. After all, what tie-up the ancient Southwest and Southeast had, should have existed chiefly in this state. The society is to be congratulated on its efforts and results, and wished wider support for its important endeavors.

A. L. KROLBER

Totem Poles of Gitksan. C. M. BARBEAU. (National Museum of Canada, Bull. 61, 1930.)

I found Barbeau's *Totem Poles of the Gitksan*, an otherwise valuable book on the totem poles of the Northwest, very misleading when treating on the origin and history of totem poles.

Anyone who has made a study of the early history of this section of North America, a great deal of which is founded on the works quoted by him, will note a number of errors in the identification of the localities referred to, errors that place them in wrong linguistic groups—thus making his deductions very unsound. He apparently does not realize the earlier traders and explorers seldom landed—doing their trading under sail, being afraid of treachery of the Indians and not knowing suitable anchorages in the most productive area of the sea otter. Take for instance Captain Dixon; though he worked up and down the coasts of the Queen Charlotte islands, no mention is made of anchoring or landing at a village. He, like others of his day, depended on Captain Cook's chart; and made either for Nootka or Prince William's sounds to replenish his supply of wood and water.

As for the origin of the totem poles among the Haida, nothing definite is known, though it appears to have been a well established custom by 1800—not only do we have the references given us by Douglas in 1789, Bartlett and Marchand in 1791, but also the interesting note that the crew of the ship "Jefferson" (Captain Roberts) assisted in smoothing and erecting a totem pole on North Island in 1794. When Camille de Roquefeuil visited the four Masset villages in 1818, he remarks that "the

houses are better built than those further north and that they were particularly remarkable for the monstrous and colossal figures which decorated the houses of the principal inhabitants and the wide gaping mouths of which serve as a door."

The first totem poles to be referred to south of the Masset area are those at Skidegate in 1829, when Jonathan Green, a missionary on board the trader "Volunteer," visited this village. In his journal he makes the following entry with regard to Skidegas:

The houses of which there were thirty or forty, appeared tolerably good and before the door of many of them stood a large mast carved in the form of the human countenance, of the dog, wolf etc., neatly painted

I think the above references to the Queen Charlotte islands sufficient to prove that the erection of totem poles by the Haida was a common practice many years before 1830.

Though the coast villages of the Tsimshian were visited by traders in the early part of the nineteenth century, no entries in their logs that have come to light in recent years refer to totem poles in this section. The Nass Indians, who were often visited by ships lying at the mouth of the Nass river, were greatly feared by the traders, and no mention is made of visiting their villages, so that we have to depend entirely on Indian tradition as to whether they had totem poles at this period.

It is apparent to one who has examined the totem pole villages of British Columbia, that the author's knowledge of Haida totems has been acquired from photographs or from specimens to be seen in museums (in neither setting do poles show to advantage) and it should always be remembered, when using the latter for comparative purposes, that collectors had to consider the height of the building where the specimen was to be exhibited, which often made it necessary to refuse the finest carvings.

Then there is a type of pole erected by the Haida (only one or two specimens have been secured for museums) known as the mortuary pole, where the coffin was placed in a hollow at the top, often boxed in by carved horizontal boards. The owners of this type of pole will seldom sell, they having the same reverence for them as was expressed to Mr. Barbeau by the Nisrae when he wanted to purchase a memorial pole. One visiting Queen Charlotte islands today would find about one hundred poles in various stages of decay; of these, nearly a third would be classified under the latter group.

The Kwakiutl poles cannot be judged by those recorded from Alert bay, as this is a comparatively modern settlement, the Indians having since the arrival of Europeans, moved over from the mouth of the Nimpkish river. Poles, apparently old, are to be seen in photographs taken in the Knight Inlet country about 1873, though I know of no similar records for the better known villages near the modern trade routes. These Indians, together with the Kwakiutl of the west coast of Vancouver island, originally seem to have had only carved "house posts." This agrees with Dr. Tolmie's findings in 1833 among the Milbanke Sound Kwakiutl, he making

no mention of outside carvings or "house front painting," but describing carved posts supporting house beams.

Taking the Nootkan, the Webber drawing in Cook's third voyage, showing carved posts inside Macquinna's house, represents the only type of carved pole we know from this tribe. A few can be seen in museums, the majority poorly carved. The same may be said about the Coast Salish with the exception of Comox, where photographs taken in the 1860's show carved totem poles standing clear of the houses.

Not having visited Tlingit villages I cannot speak with any authority on this group, though Lt. G. T. Emmons informs me that totem poles were found in 1867 at Old Wrangel, a village that had been abandoned in 1835 on the establishment of Fort Wrangel by the Russians.

With regard to the Nass River Indians being on the whole the best carvers in the country, they were no doubt in certain classes of work, especially in portraiture, but I quite agree with C. F. Newcombe (*The Haida Indians*, ICA, 15, 1906) that "the Haida excelled in the size, quality and finish of their work in wood." Carved wood dishes, bone, horn, and tooth charms collected on the Nass equaled anything I have observed in this class of carving of the Haida, but for intricate and artistic work on charms, one finds in Tlingit collections the finest specimens. Another group which has been given little consideration, is the northern Kwakiutl, chiefly centered about Milbanke sound. Of the few old pieces I have been fortunate enough to examine from this tribe chiefly masks, the craftsmanship equaled that found on similar material further north. I cannot compare Nootkan carving with the above, having seen few old authentic specimens, but for artistic adzed designs I know no finer examples than those formerly found in their villages.

Geographically speaking, the mouth of the Nass was about the center of the Northwest Coast art, but, as can be corroborated by anyone having the opportunity of examining the old collections made in this area, other tribes equaled or surpassed them in certain classes of carvings.

In the following paragraphs corrections are made of some of the more noticeable errors in the geographical names and the accepted interpretations of many of the quotations from early journals. Page numbers refer to Bulletin 61, *Totem Poles of Gitksan*.

Page 12, note 6. Illiellen Pole — "This pole was the oldest pole Dr. Newcombe could get information on." Dr. Newcombe secured his information in 1911, from the descendants of the original owners which, checked with known happenings in this area, gave him reason to estimate the age of the above pole at approximately 100 years. He photographed it at the time, it still being supported by part of the house frame, and being well protected from storms by coniferous trees. When the pole was taken to Prince Rupert it was found necessary to remove six or eight feet off the top on account of decay. Taking the above reckoning the pole would now be nearer 120 years old.

Page 14. A positive statement that "no totem poles were at Port Simpson in 1857," based on a fanciful picture published in Arctander's *Apostle of Alaska*, is made on very weak grounds, especially if one critically examines the picture in question. Take for instance four

bastions, when records only mention two; palisades 40 feet high, if one takes the average Tsimshian house to be 20 feet to the gable, and sixteen houses shown adjacent to the fort. The Indian village is known to have extended well to the right of the picture, and many of the wealthy Indians lived on the island from which the view of the fort was made.

Ten years later (1867) George Davidson states that "The habitations numbered about 100 and that before most of them there is a tall thick post, carved with grotesque figures" (see *Alaska Coast Pilot*, 1869, page 18 and two illustrations).

Page 15, paragraph 4. "Striking lack of evidence of the existence of totem poles proper—several villages of the Tlingit, Haida, Tsimshian, Kwakiutl and Nootka were often visited by mariners in the early days."

In paragraph three on the same page, he mentions Cook, Dixon, Mears, Vancouver, Marchand, and La Perouse. Cook only visited Nootka and Prince William's sound; neither place has ever been credited with totem poles, other than carved house supports. Dixon, though trading with the Haida, does not mention landing at a single village. Mears himself did not visit any village later known to have had totem poles. Vancouver first came in contact with what we know as totem poles in Johnson channel near the mouth of Roscoe inlet, a village of the Bella Bella Kwakiutl. He did not land on the Queen Charlotte islands but named and roughly charted from off-shore some of the leading features of the west coasts of this group. Marchand, who is quoted extensively, examined a very small portion of the west coast of Queen Charlotte islands from Langara to Hippa island and neither he nor any of his officers were in the Tsimshian or Kwakiutl country. La Perouse, though sighting Queen Charlotte islands and Vancouver island, made no landing in either locality.

Page 15, note 3. A Vancouver quotation, page 16: "This village must have been northern Kwakiutl etc." The drawing mentioned is of Cheslakee's village which was situated on the north side of the mouth of the Nimpkish river, Vancouver island. Menzies in his manuscript calls the chief Cathlagees. The village name was Whannock (Whulk of recent writers) and was Southern Kwakiutl.

Page 15, note 4. The Mears picture here referred to is "The Launching of the North West America" at Friendly Cove, a locality which, as far as any records or photographs show, did not have an outside pole until 1915.

Page 16. The earliest drawing of a carved pole is found in Bartlett's *Journal*, 1790. This is probably "one of the great wooden images" seen and recorded by Captain Douglas of the *Iphegenia* in 1789, and Ingraham in the *Voyage of the Hope* 1790-92, where he says they were about 40 feet high and had carvings of men, frogs, and birds. The latter also mentions carvings before the grave houses on North Island. The point here is where to distinguish between the house frontal poles, grave poles, and totem poles as we know them today.

Page 17, top of page, "Nootka houses were also visited and described by Vancouver as follows"—This opening paragraph is quoted from Vancouver's *Journal*, 2, 272, and refers to a Bella Bella Kwakiutl village in Johnson channel not far from their present town. The carving mentioned here are the first totems to be noted by Vancouver.

Page 17. The Marchand references are to Haida villages, the first to a house on the west end of Lucy island and the second to the village of Dadens on Langara island, both of which places are on the Northwest corner of Queen Charlotte islands, 100 or more miles from a Tsimshian or Kwakiutl village.

Page 18. The Vancouver quotation is the same as that quoted above which refers to the Bella Bella and is not Nootkan. As for the conclusion that memorial poles did not exist at this time on the Queen Charlotte islands all of the above references lead one to believe the

contrary. The Marchand extract, on the top of page 18, might well refer to a memorial totem and Ingraham distinctly notes grave carvings.

Page 18. In the last paragraph on this page, the statement that the only large carvings were house posts, short, stumpy and crude, is not borne out by the early references. The Bartlett picture is of a pole double the height of the house and Ingraham says poles 40 feet high, which is about the height of the average pole as we know them. Whether crude or not is hard to prove, this term is used today by many people viewing our finest specimens.

Page 19. The poles described by Cook, Dixon, Bartlett, might be called "transitional poles," as it is noted even at a later date that the Tlingit preferred to fell their trees with stone implements rather than with the iron axes in their possession at the time. The carving was probably done with metal tools, either secured by trade or from wrecks as has been suggested. It might be well to note here that few bone or stone celts and knife blades, suitable for fine carving, have ever been collected from the Haida, though a great many heavy hammers and adzes are preserved.

Page 19. Previous to 1774 there are no records of the Northwest Coast having been visited by whites as far south as the Queen Charlotte islands.

Page 20. The third paragraph on this page reads in part: "For although the Russians live amongst them." This is not an extract from Captain Cook in 1778, but from Captain Vancouver's Journal, 3: 199, 1794, and refers to the natives of Cook inlet and Kodiak island.

Page 20. The white man left at King George's sound was Mr. Mackay from James Strange's expedition which visited Nootka with the vessels Captain Cook and Experiment in 1786. Mackay remained at Nootka with the object of cornering the fur for Strange on his next visit.

Page 21. The Marchand description of a house at Dadens, Langara island, has always been considered by ethnologists familiar with the Queen Charlotte islands to have been either a "pitted" house with the pit boarded over, or a house with the front overhanging a bank, making long front posts and flooring necessary. There is nothing in the reference to show that they had imitated a type of dwelling they could have seen only in pictures.

Page 22. La Perouse did not visit the Queen Charlotte islands.

Page 22. The publication of the Academy of Science of Petrograd I have not been able to secure, but the few quotations used by Mr. Barbeau can be found and discussed in the following works:

G. H. Muller, *Voyages from Asia to America*, etc. Translated by Thomas Jeffreys, 1761.

Wm. Coxe, *Account of the Russian Discoveries between Asia and America*, etc. Published 1780.

James Burney, *Chronological History of the North Eastern Voyages of Discovery*, etc. Published 1819. These authors evidently had access to the papers recently rediscovered by Messrs. Berg & Sternberg.

The information that the Russians had come in contact with the Northern Tlingit and probably the Athapascan previous to 1790 is generally known to the students of Northwest Coast history, but the Russian scientists quoted by Mr. Barbeau were on the coast after 1800, some of whom visited California at the Russian settlement of Fort Ross, established in 1815.

From the above records there is nothing to prove that any of the Northwest Coast people south of Cook inlet had more than fleeting visits of one or two ships up to the time of Captain Cook's arrival in 1778. These visits could not have influenced them in their methods of living with the exception of the use of metal that was most likely traded.

Page 23. Wrecked Japanese junks and pieces of wreckage were most likely the original source of iron on the Northwest Coast.

Page 24. The abalone found among the Tlingit, Haida, and Tsimshian, is a Californian species of *Haliotis*, easily secured at low water. It has been generally understood that they were traded up the coast in prehistoric times, but that the fur traders soon added them to their trading stores when calling at California ports. A sketch in Captain Dixon's *Voyages* shows a labret inlaid with abalone. This was drawn before the fur trade was fully established.

Page 24, note 3. Kanakas were paid servants of the Hudson Bay Company, and were used at many posts west of the Rockies, doing similar tasks as the French Canadians. Governor Douglas retained a number in Victoria as a bodyguard. Many of the earlier fur traders also signed them on as sailors while they remained in these waters.

Page 26, note 1. This information was given Dr. Newcombe by the head chief of the village of Ninintins. The poles were placed at the end of the village, which was soon after burnt. The fine row of poles in the main village, still standing, has no connection with the saying

W. A. NEWCOMBE

SOUTH AMERICA

Ceremonial Games of the South American Indians RAFAEL KARSTEN (Societas Scientiarum Fennica. Commentationes Humanarum Litterarum. III 2.)

In this short paper Karsten presents data on a number of South American games and includes, incidentally, considerable material on miscellaneous magico-religious beliefs and practices. He is convinced of the original "magical significance" of games which, through the sloughing off of these associations, have "degenerated into mere diversions or amusements." He is diffusion conscious and, on the basis of terminology and common function, derives the huayru games of eastern and montaña Ecuador from the southern highlands, and suggests, furthermore, the same derivation for the taba dice game of northern Argentina. In the latter place the game has "lost its ceremonial significance," but elsewhere it figures in post-mortem rituals.

Through linguistic evidence the author traces the Chaco stick dice game to the western montaña (a conclusion presented some time ago by Nordenskiöld, *Comparative Ethnographic Studies*, 1:157), but with the following qualification:

The Chaco Indians, in all probability, have only borrowed the leading ideas underlying the game, together with the terminology, from their neighbours in the West, and to a certain extent invented a new game, giving these borrowings an application of their own.

In connection with this same Chaco game, Karsten notes a "counting board" consisting of a crescent-shaped row of holes. As is shown by Spier's analysis (*Havasupai Ethnography*, AMNH-AP 29:348), a semicircular arrangement is characteristic of some North American forms of stick dice, namely, Paviotso, Walapai, and Taos. Nordenskiöld (ZE 42:425-433) has already called attention to the striking similarities between the North American and Chacoan forms, and this seems to be one further detail of agreement.

ISABEL T. KELLY

Peruvian Textiles: Examples of the Pre-Incaic Period. With a Chronology of Early Peruvian Cultures by PHILIP AINSWORTH MEANS, and an Introduction by JOSEPH BRICK. (New York: Metropolitan Museum of Art, 1930. 27 pp., 24 pls.)

The reproductions are in high-grade halftone, uncolored, but with the difficult hue-values well rendered, and large scale. The textiles are excellent representative specimens, mostly tapestries, without notable show-pieces. It seems doubtful if any of them have documentary proveniences. At any rate, none are given, the attributions as to period and area appearing to be all due to Mr. Means. He classes eight fabrics as of highland origin, Tiahuanaco II culture, 600-1000 A.D.; evidently on stylistic grounds. The Tiahuanaco style is generally accepted as originating in the highlands, but it also spread to the coast, and everyone of these specimens may well have been found on the coast, and made there; several in fact possibly during immediate pre-Inca times. The rest of the collection is also dated to century, which is likely to give the non-Peruvianist a false idea as to the certainty of Peruvian chronology, irrespective of the fact that Mr. Means is as entitled to his opinion as anyone else. His scheme, slightly revised from former versions, summarizes as follows: A.D. 1-500, Early Chimu, Nazca, and Tiahuanaco I; 500-600, Coast and Highland Transitional, 600-900, Tiahuanaco II, Coast included; 900-1400, on Coast, Late Chimu and Late Nazca (= Ica?), in Interior, Neo-Archaism to 1100, Early Incaic to 1400; 1400-1530, Incaic.

A. L. KROEBER

Las Ruinas del Pucara, Tilcara, Quebrada de Huamaca (Provincia de Jujuy). SALVADOR DEBENEDETTI. (Buenos Aires: Facultad de Filosofía y Letras de la Universidad de Buenos Aires. Archivos del Museo Etnográfico, numero 11, primera parte, 142 pp., 26 plates, 29 text figures, 2 maps. 1930.)

Pucara del Tilcara, not to be confused with Pucara del Aconquija, is a fortified hilltop located near the Bolivian border of the Province of Jujuy in northwestern Argentina. It has been known to students for many years and is one of the most famous ruins left by the Diaguita tribes. In 1908 the late Dr. Juan B. Ambrosetti, assisted by Dr. Debenedetti, began a series of excavations, which they continued in 1909 and 1910, while in 1928 and 1929 Dr. Debenedetti conducted further investigations.

The publication here reviewed is, we trust, preliminary to a study of the excavated material now exhibited in the Museo Etnográfico of Buenos Aires. The author at present describes the general nature of the locality and then devotes a chapter to the streets which intersect and encompass the ancient city. He explains that often they run on raised terraces forming house sites, and that the terraces are contained by vertical stone walls following the contours of the hillside. Some of the streets connect with the principal entrances of the city, and there is a main thoroughfare running north and south which divides the city into two parts.

The excavation of 212 houses is next detailed. For the most part they are rec-

tangular, and measure from two to six meters on a side. The walls of unmortared stone are about half a meter in thickness and once stood about two meters high. Excavation under the floors revealed numerous burials accompanied by mortuary furnishings, which are listed and briefly described in the text. Adult burials in most cases seem to be secondary, for according to the several plans which accompany the text, the bones were often found in heaps. Children were buried in urns. In many cases, rectangular, circular, or semi-circular stone cists had been constructed to contain the bodies, and these often were capped by stone slabs. This, we may point out, is a type of burial also recorded further south in the Argentine and by Latham in the Diaguita region of Chile.

Another chapter describes cemeteries on the east and south slopes of the hill, where over 200 burials were uncovered. Only twenty-six burials, however, are examined in detail and the accompanying finds listed. All such interments were in circular cists measuring from 1.50 to 2.30 meters in diameter.

No attempt has been made to describe or to illustrate in detail the numerous objects of pottery, wood, gold, bronze, and bone which came to light during the excavation. From two vessels reproduced in colors and from objects sketched in the house plans, however, it is clear that the finds on top of the mesa date mostly from Incaic times. Dr. Debenedetti notes that the graves on the slopes yielded a much poorer class of artifacts. They indicate complete absence of Incaic influence, but show a connection with remains from the Calchaqui valley.

The final chapter discusses the restoration of Pucara, a task which the author has partly accomplished.

Detailed criticism of this work at present seems premature owing to its obviously preliminary character. It should be noted that it contains much original material secured by the labor of five field seasons. Its value lies primarily in the exact listing and segregation of numerous grave finds. In addition, there are many excellently reproduced photographs, as well as ground plans of the most important houses. To the latter we wish that vertical sections had been added, as the differences in levels are not clear. Also there is a map of the city, but there are neither list of contents, list of illustrations, nor index, a deficiency which should be remedied in the second part. We hope that an additional volume will contain also a study of correlations and chronology.

S. K. LOTHROP

NEAR EAST

The Most Ancient East. V. GORDON CHILDE. (Knopf, 1929. \$5.00.)

This volume, the Munro lectures in the University of Edinburgh for 1928, follows logically on Professor Childe's earlier work, *The Dawn of European Civilization*, already a classic, which insisted on the initial and long continued inspiration of the Ægean and the Ancient East in the development of the post-Palaeolithic cultures of Europe.

He now sketches the development and interrelation of those eastern cultures

whose heritage was being introduced and adapted in Europe from the beginning of the third millennium. The book differs however from his earlier work. Disclaiming any attempt to write a manual, at a time when discovery is proceeding so rapidly, he gives us instead a brilliantly written conspectus of the material and problems. The apparatus of scholarship is relegated to a series of notes and references at the end of the book. The compressed, allusive, and consequently difficult style of his earlier treatises is here replaced, in accordance with the aims of the book, by a lucid narrative, illustrated with a large number of half tone plates and line drawings.

From a discussion of the cultural and geographical conditions in the Ancient East at the end of Palaeolithic times he proceeds to sketch the slow elaboration of the agricultural and copper working cultures in Egypt and Babylonia. The recently discovered Badarian civilization, in which emmer wheat was already being grown¹ and copper coming into use, is shown to be fundamentally autochthonous and ancestral to the first of the predynastic cultures already abundantly published by Petrie and others. The latter at the same time exhibits new elements, labelled Libyan, which were probably foreign to the Badarian substratum. The second predynastic culture, with its numerous innovations, is regarded as largely the result of Eastern influence. As with the other cultures it is known only in Middle Egypt, but Childe accepts the assumption that it first took shape in the Delta (where the archaeological record is buried under many feet of alluvial mud) and gradually infiltrated into the valley. That the later predynastic culture advanced from north to south is generally admitted, and later evidence from the Delta region indicates that it too had its prehistory. Childe is therefore inclined to accept the suggestions of Petrie, Frankfort, and others that the high skill in the manufacture of stone vessels, the wavy-handled jars, the pear-shaped mace, and other items is to be derived from the eastern desert, Palestine, and Syria. He does not however assume a Mesopotamian cultural hegemony.

Down to this point it has been possible to explain the growth of civilisation in the Nile Valley as a self contained and continuous process. Though more than one racial element contributed to it and we distinguish two civilisations, all the more important discoveries and inventions may have been made within the Nile Basin. The second civilisation has indeed Asiatic connections, but nothing *proves* its indebtedness to Asia, the Mesopotamian parallels may at least theoretically be interpreted as reflexions of a civilising current from Egypt (97-98).

The description of the early cultures in Mesopotamia follows the results of De Morgan, Woolley, Mackay, and others down to 1928. This account, as Childe foresaw, already needs recasting as far as the lowland cultures are concerned, as a result of Woolley's 1929 results.² It is, however, clear that before the First Dynasty of Ur.

¹ Brunton's definite statement of the presence of emmer has been published since. See *Antiquity, and Guide to Egyptian Antiquities from Mostagedda*. Badari District, Middle Egypt, British Museum 1930, in which he also sketches the subdivision now required into earlier, Tasian, and later Badarian periods.

² *Antiquities of Ur*, Introduction to the Eighth Temporary Exhibition of the Joint Expedition of the British Museum and of the Museum of the University of Pennsylvania to Mesopotamia, British Museum, 1930.

dateable to a period immediately preceding 3000 B.C., the prehistoric peoples of Lower Mesopotamia have already.

combined to put their dwellings beyond the reach of flood. They have built them sacred cities raised above the swamps on platforms of brick-work. They have submitted to the temporal guidance of rulers whose palaces crown the citadels. They have extended those trade relations essential to existence on an alluvial plain till they exchange goods with Anatolia and Egypt. For the conduct of their business they have devised a script and have applied the seal to the authentication of documents. They recognize, that means, in a rudimentary form at least, those legal prescriptions and financial conventions that gave rise in classical Babylonian practice to the contract and the bill-of-exchange. They have harnessed to their use the strength of bulls and asses. For its application they have invented the chariot and the wagon. (146-7.)

Childe gives a comprehensive review of the material on which the problems of the early relations between Egypt and Mesopotamia must be based, and although not meeting all the points recently raised by Perry (Man, 18, 1929) in his claim for Egyptian cultural dominance, appears to admit that the undoubted superiority of the early Sumerian culture in core casting, as shown in their beautiful socketed axes and adzes, cannot be regarded, as Hall and Frankfort have claimed, as a proof of Sumerian leadership and priority in the earlier development of the crafts of civilization. He regards the evidence of the late predynastic period as conclusive of extended intercourse and Sumerian influence on decorative arts in Egypt but considers that,

It is of much greater importance to decide to what extent Egypt was merely passive in her relations with Mesopotamia. That is a question partly dependent on the chronologies of the two countries which are uncertain just at the vital points. On the existing evidence the Royal Tombs of Ur display a higher civilization than we have in Egypt at that date. In addition to wheeled vehicles Sumerian metallurgy had attained a far higher degree of perfection than that illustrated by any Egyptian finds of the first two dynasties. Yet when we come down to the end of the Third Dynasty the sculptures and architecture in stone under Zoser far surpass any Mesopotamian achievements, and the metal work of Queen Hetepheres' tomb is nearly as good as anything produced in Sumer. If the Sumerians had invented the shaft-hole axe, the Egyptians discovered the principle of the flanged celt. But a just comparison can only be made when we have traced the genesis of Sumerian civilization as we have the growth of Egyptian. (122.)

The sketch of the Indus civilization which follows is the only connected account we yet have of the remarkable discoveries in northeastern India. Hampered by the scantiness of the published material Childe yet contrives to present a vivid picture of these new-found variants of the early civilization of the Old World. In considering their implications he speculates on the existence of a further maritime cultural center in Southern Arabia, which acted as a seafaring intermediary between Egypt, Mesopotamia, and the Indus.

A final chapter reviews the character of the Oriental world at the end of the fourth millennium, emphasizing a community of civilization which has nevertheless already branched into a series of regional cultures each of which played a fundamental rôle in the further dissemination of the arts of civilization.

This volume is a great achievement, not only in the brilliance of writing and clarity of the picture; it is a balanced and scholarly interpretation of the vast and complex material on which we depend for our understanding of the growth of early civilization. The publishers should be urged to allow for very frequent revision so that it may become a permanent guide to the results of Near Eastern archaeology.

C. DARYLL FORDE

OCEANIA

Growing Up in New Guinea. MARGARET MEAD. (New York: Wm. Morrow and Co., 1930. 372 pp.)

Books written for the public at large are often difficult to appraise justly when they are also professional contributions. But Margaret Mead's second volume allows an approach to a definition of the method which she has made peculiarly her own.

First of all, it is clear that she possesses to an outstanding degree the faculties of swiftly apperceiving the principal currents of a culture as they impinge on individuals, and of delineating these with compact pen-pictures of astonishing sharpness. The result is a representation of quite extraordinary vividness and semblance to life. Obviously, a gift of intellectualized but strong sensationalism underlies this capacity; also, obviously, a high order of intuitiveness, in the sense of the ability to complete a convincing picture from clues, for clues is all that some of her data can be, with only six months to learn a language and enter the inwards of a whole culture, besides specializing on child behavior. At any rate, the picture, so far as it goes, is wholly convincing to the reviewer, who unreservedly admires the sureness of insight and efficiency of stroke of the depiction. Various ethnologists have evidently felt less convinced, and between them and the present critic the future, with its fuller fact and reworking of data, must be left to decide. But it may be pointed out that a piece of work need not be ethnographically unreliable because it is aesthetically effective. And an artist Margaret Mead surely is.

Second, we have here, however it might also be construed as social psychology, ethnological "functionalism" of the purest kind from the heart of the Boas school. Evidently functional anthropology is not nationally delimited. It could be found in heavy ingredient in the work of Boas himself, were one inclined to look for it there, under the overlay of piled up fact, demonstration, self-criticism, and stern repression of impulses toward aesthetic form. This raises the interesting question whether the essence of the functional approach, apart from its occasional dubious seeking of law, does not lie in vivid apperception and presentation against an intellectualized background, rather than in any truly distinctive scientific method.

Next, it is clear that this treatment can be most effectively applied to healthily living cultures. Here Dr. Mead, like Malinowski, has shown sure instinct. Except perhaps for Hopi, Zuni, and Navaho, her method would be a relative failure with any surviving North American tribe. It could be made no doubt to yield a great deal for the sociologist interested in the more or less pathological formations hybrid between cultures thoroughly diverse in kind and content; but scarcely for the eth-

nologist. Native Indian memories that still yield valuable masses of ethnographic fact are likely to be too thin to serve as clues for a decisive picture. For similar reasons the technique evidently requires a culture still rich enough to allow of elimination of data. A work of art can scarcely be put together out of fragments of material. Of less importance seems the insistence, parallel to Malinowski's about Trobriand, that the culture of Samoa and Manus is still almost wholly native. This is evidently not, as has sometimes been felt, a device to make the ware more saleable; though even if it were, the fact need not trouble any anthropologist, since the accounts themselves show quite faithfully to any professional where Caucasian civilization has entered. The point is that these Oceanic civilizations, in spite of damage and losses, remain essentially native in that their fabric of society is still sufficiently coherent to retain its vitality; and if this were not so, the particular method would not be adequately applicable.

Finally, like the other functionalists, and like the authors of Tepoztlan and Middletown, Dr. Mead is wholly unhistorical minded. This is not said with the idea that history need be dragged in everywhere, or that the functional method is insufficient in itself. But it is remarkable that in none of these works is there apparent any serious sense of historical problems obtruding themselves, of every culture necessarily having a historical dimension. It may be suspected that this concern with the present is compensated for by a slant of interest in the future, especially the immediate future—in other words a bent toward the applied. Perhaps this is one of the implied and not fully recognized differences between the sociological and the anthropological attitudes, the one tending toward the practical and present, the other toward pure understanding and the past. In this light, Dr. Mead's four chapters constituting Part 2, "Reflections on Educational Problems of To-Day," are not mere filler, but an integral result of her method and legitimate part of her scheme.

However, the reviewer believes that to most ethnologists, as to himself, this section will be meagerly unsatisfactory. A sharp interest in the America of 1930 without reference to its antecedents a hundred and two hundred years ago and the centuries of European culture below these; the comparison with Manus and Samoa alone without even Trobriand,—such deliberate limitation does not augur promisingly for the uncovering of new and deep understandings. Also, to the ingrained anthropologist, who all his life has been schooling himself to see his own culture really on one horizon with all others, the singled-out interest in the here and how per se must come as something of a shock. It is in this part of her work that Dr. Mead falls far below the penetratingly analytic and theoretically important discussions of Malinowski, as in the last half of *Sex and Repression*.

A dozen appendices finish the book unsatisfactorily, at least to those appreciative of the rounded form of its main portion. There is a little program sermon to psychologists on culture, not bad in itself, but deserving a more dignified place if worth doing at all; a tantalizingly incomplete set of ethnographic notes on Manus, for which however we shall have to be grateful until the appearance of Mr. Fortune's memoir; a vivid twenty pages on Caucasian influences; sections on pregnancy, a house census, a sample legend, a most valuable record of the families of their village given by two

little girls, a diagrammatic and two other incomplete maps, etc. It hurts to see good ethnologic data slighted by such disjointed treatment; one feels them used as instruments of justification, or granted as concessions, not presented with a sense of their own value. A real map of the village would mean infinitely more to most ethnologists than a diagram which the printer has set up in type, and would not be in the least more repellent to the public. The artist's inspiration had evidently run out when the main work was done. These appendices had better have been left out, or their pertinent content worked into the text.

Fairly enough, it seems, the corresponding question can be asked about paucity of ethnographic data throughout this volume, as well as Samoa. Have these data not been got in full by Dr. Mead, or were they deliberately suppressed as likely to interfere with the vividness of the picture? Here the comparison with Malinowski breaks down wholly and to Dr. Mead's disadvantage. One may dismiss Malinowski's interpretations, if one be so minded, as possessing only the temporary interest of all theories; one may chafe at the didactic device of dealing out only a portion of Trobriand culture each year or two. In spite of these and perhaps other limitations, the fact remains that the mass of ethnographic information which we owe to Malinowski is unusually saturated, detailed, accurate, well integrated, and valuable. We have not only his say-so as to how Trobriand culture functions, but his full documentation. Why does Dr. Mead omit this documentation, except for scraps? The quality of the scraps shows she can secure exceedingly excellent ethnography. But is the providing of this always to be left to a Krämer or a Fortune? It is a fine thing to be made to see so clearly how a young man's marriage debts color his personal activities and social attitudes for twenty years after. But it would be more satisfactory yet to learn just what these debts are, how incurred and discharged. After all, such facts are the body of the picture of which now we have only the salient lines.

To judge Margaret Mead by the standards inherent in her work, her gift is essentially aesthetic, suffused by the power of conceptualization, and holding a legitimate and stimulating place in anthropology; and she possesses this gift in a degree approaching genius. If she will add the substantiating body of fact, her work will also be unusually influential in the science. When she leaves her vein to intellectualize about American educational tenets of 1930, or to compromise between the amount of cultural fact that ethnologists want and the public will stand, her own peculiar quality rapidly evaporates. If she can learn to satisfy only herself, she should do finer and profounder works than Samoa and New Guinea.

A. L. KROEBER

Orokaiva Society. F. E. WILLIAMS. (London: The Oxford University Press, 1930. 355 pp., 25 figs., 36 pl. Price \$8.50.)

Mr. Williams is already well known to students of anthropology, and this is the second important work which he has published on the Orokaiva, a collection of large tribes occupying the major portion of the northern division of Papua.¹

¹ The first work on the Orokaiva was entitled *Orokaiva Magic*. It was published in 1928 by the Oxford University Press, and was reviewed in this journal by Dr. Margaret Mead.

Initiation ceremonies in their most typical form are common to both Australian and Papuan cultures, and the Orokaiva are no exception to this cultural rule. Among the southern Orokaiva both boys and girls at the age of puberty are made tribal members through an elaborate initiation ceremony, the central feature of which consists in showing the neophytes the sacred flutes, bull-roarers, and shell whistles. The pupils are taught to play upon these instruments, which indeed are thought to represent the voices of the dead crying for food.

Contrary to the customs of certain of the tribes of the former German New Guinea, the Orokaiva do not make use of a "Death and Resurrection" ceremony, and certainly not in its typical regional form of having the neophytes devoured by a mythological monster. There is a suggestion of this trait, however, in the Orokaiva initiation (183), for the initiators represent spirits who are about to devour the children, while the terrified parents call upon them to cease.

The making of a tribal mark plays a prominent rôle in the initiation ceremony of the Hunjara tribe (98). It is the custom there to defer making the nose-hole until the time of puberty, when youths and girls, sitting in a row, have to submit to a painful thrust with a bone needle.

There have been two schools of thought among scholars concerning the origin of the drama in Ancient Greece. Some believe that the drama has arisen from the Greek "mysteries" or secret societies, and the minority opinion has it that the drama arose from mortuary rites. Both opinions would appear to be correct for the Orokaiva. Among the northern tribes, dramas, in which the actors are shrouded in secret and sacred disguises, are performed at both tribal initiations and at funerals. The actors, who are always males, represent spirits, and are suggestive of the masked mummers of secret societies in the more westerly divisions of Papua.

Among the many features of Orokaiva society, of interest to the comparative ethnologist, is the heratu, or plant emblem or totem. Each clan has its heratu, which is almost invariably some plant or tree (113). The totemic significance of the heratu is mainly brought out by the fact that it is referred to as the ancestor of the clan, but the emblem is also used for safeguarding property and as a taboo mark. According to Codrington, the Banks islanders make use of leaf and flower emblems in connection with the various tamate societies, and there also the emblem is used to protect property.²

Throughout Oceania it often was customary to bestow special honor and decoration upon the homicide or head hunter. The Naga of Assam, who are to be reckoned as Oceanic in their cultural affiliations, grant the right of wearing a tail feather of the great hornbill to the warrior who has taken a head.³ Many tribes of the Philippines wore colored headbands as tokens of success along the same lines of endeavor.⁴ In far off Fiji, every warrior who had slain a man, woman, or child, was rebaptized and given a new name.⁵ Among the Orokaiva, certain ornaments, including the

² R. H. Codrington, *The Melanesians*, 75. Oxford, 1891.

³ J. H. Hutton, *The Angami Nagas*, 29. London, 1921.

⁴ A. L. Kroeber, *Peoples of the Philippines*. AMNH-Handbook, 8-173, 1928.

⁵ Basil Thomson, *The Fijians*, 98. London, 1908.

hornbill beaks and the cuscus fur, formerly were granted the homicide. Since similar decorations were bestowed upon both male and female neophytes at the time of initiation, the subject requires further treatment in this region. Among these people the slayer took, indeed, a new name; but it was that of the slain enemy!

Marriage takes place among the Orokaiva by purchase, exchange, elopement, or capture. Capture marriage formerly meant what the term implies: the rape of females from hostile tribes. Other forms of marriage are basically those of exchange between groups, a woman of one group being exchanged for a woman of another group. Thurnwald has shown that this is the basic, and perhaps original, form of marriage for all of Australia and New Guinea.⁶

From the examples thus far cited, it may be seen that the book is rich in material for the historically minded ethnologist. The author himself, however, seems entirely free from all historical conceptions. No great harm is done by this, except that a certain amount of space is wasted (according to my way of thinking) when the "meaning and purpose" of such worldwide phenomena as initiation rites are sought in local example. Then again, Williams attempts to find the psychological background of native custom, and for this an elementary knowledge of psychology might prove of aid. It should be fairly obvious that when people such as those of New Guinea are lacking in cults having spirit possession as their keynote, an introduction of this concept from outside will inaugurate many new forms of religion, such as the taro cult, and that these movements will sweep the land with great rapidity. Yet the author entirely neglects to trace the new religions to their proper geographical setting, and falling back upon his own concept of psychology blandly tells us that many "mutations" in culture doubtless have arisen in the dreams of the natives!⁷

In treating of such splendid works as those written by Williams, however, it seems unfair to cavil at faults and peculiarities in the author's theories, and I, myself, should place the present work in the topmost rank of ethnological literature.

E. M. LOEB

MISCELLANEOUS

The Medicine Man. A Sociological Study of the Character and Evolution of Shamanism.

JOHN LEE MADDOX. (New York: The Macmillan Company, 1923. 330 pp., 4 pls. Price \$2.25.)

Here is another sociological book from Yale, sponsored, and with the customary foreword, by Professor A. G. Keller. Most of the pet hobbies, theories, and antique authorities of this eminent educator shed their customary luster through the pages of the volume; it may well be, for "the enlightenment of the general reader." The specialized anthropologist will, I believe, derive his sole comfort from the final chapter which deals with the history of medical remedies. One is truly surprised to find

⁶ R. Thurnwald, *Die Gemeinde der Bánaro*, 16. Stuttgart, 1921.

⁷ F. E. Williams, *Orokaiva Magic*, 83.

the number of valuable drugs, such as cocaine, which first were used by the primitive medicine man.

E. M. LOEB

Musik des Orients. ROBERT LACHMANN. (Breslau: Jedermann's Bucherei, Ferdinand and Hirt, 1929. 128 pp.)

In the musical section of the Jedermann's Bucherei, a growing number of valuable little monographs is being published, most of which are of interest also to the student of cultural history.¹ In the present volume Dr. Lachmann, known for his original studies of the music of Arab North Africa and of the Japanese Nō², has furnished an excellent introduction to the study of Oriental music. The need for such a comprehensive treatment of the music of the great Oriental cultures has been long felt and our present knowledge of the subject is sufficient to warrant a comprehensive treatment. But hardly more than the most general features of Arab, Hindoo, and Southeast Asiatic music have been investigated so far. Strictly scientific methods were introduced into this study only with the first physical-acoustical measurements on exotic musical instruments by A. J. Ellis³ and with the objective reproduction of vocal and instrumental music on the phonograph.

No doubt, in the writings on music and musical theory of classical Chinese, Hindoo, and Arab literature, most valuable material has been preserved and made the object to study long since, by linguists and students of literature primarily. But musical theory, as any other, represents often a retouched image of the state of matters, viewed from specific angles when organizing the subject-matter into the theoretical system of representation. These angles are never wholly identical with the angles of chief interest of the investigator, nor are they ever known to him entirely. Classical Oriental theory of music leaves without mention many essentials, either because they were "understood," too obviously implicit in the system, or because one was not aware of these essentials. We hear about the officially recognized music of the urban cultured class, but little about the "folk music" of those periods. Finally, in Oriental cultures, as in so-called primitive cultures too, music is not as free of connotative meanings of a social or religious nature as it has become with us. The tones and modes recognized in musical theory were brought into accord with cosmical agencies and the mystical properties of the planets. The tuning of musical instruments and the resulting tonal structures were to a certain extent determined by the symbolic values of the numbers or by units of measurements taken from other realms, sanctioned there by prolonged use and by mythical derivation.

¹ See especially the volumes *Die Musik des Altertums* and *Die Musikinstrumente*, by C. Sachs.

² *Die Musik in den tunesischen Städten.* *Archiv für Musikwissenschaft* 5 (Leipzig), 1923. *Musik und Tenschrift des Nō. Bericht über den 1. musikwissenschaftlichen Kongress der Deutschen Musikgesellschaft* (Leipzig), 1926.

³ *Proc. Roy. Soc. London*, 1884; *Journ. Soc. of Arts*, 33, 1885; Appendix 20, K in Helmholtz, *Sensations of Tone*, 2nd ed., London, 1885.

Philosophical and mystical speculations have to a great extent shaped musical theory and systems, they have led the trend of stylistic development and conditioned esthetic evaluation. Hence, a most valuable instrument as it is, and a significant document by itself, classical Oriental musical theory had to be elucidated by modern research rather than taken as a guide to be followed blindly.

The technical details of the history and nature of Oriental musical systems are too involved to permit even of a cursory treatment at this place, the interested reader should refer to Dr. Lachmann's scholarly exposition. Instead, it may be sufficient to point here to some of the questions that bear methodological significance. Such is the question of the absolute pitch of musical instruments, which has been given much attention by von Hornbostel.

In purely vocal music, absolute pitch (on which a song begins) is not accorded any importance. In consequence it varies from song to song, from singer to singer, or between renditions of the same song on different occasions. It would be also difficult to keep this pitch constant. But on musical instruments (especially with fixed pitches), absolute pitch can be standardized and also further preserved, if the attempt is made to make all instruments of a certain type of a standard size and structure. This may be achieved either by copying old models when making new ones, or by utilizing standard norms of measurement. The reasons for preserving a certain absolute pitch are purely cultural. In Oriental cultures, the tone (and its absolute pitch) is preserved so as to leave intact the purity of the connotative meanings which were accorded the tones, and the measures of length by which the tones were defined.⁴

In two distinct cultures, standardized norms of measurement will be, as a rule, different, and so will be the standard sizes of musical instruments and their standard musical pitch (if these should be made uniform at all). But if, in distinct cultures, musical instruments be found, the absolute pitch of which is identical (that is, the pitch of the tone from which the tuning of the instrument progresses) within the bounds of the error of measurement, this will suggest that the agreement is due to cultural connections. The number of possible choices when selecting a certain standard pitch for the starting point of the system is so great as to render the possibility of accidental agreement exceedingly small. The material or the shape of the instrument does not limit these possibilities of choice. Only the size of the instrument may have an approximate upper and lower limit, to permit the instrument to be handled with sufficient ease. There are no physical or psychological reasons for preferring a certain pitch, nor is any factor present in the musical system itself (that is to be materialized on the instrument) that would call for a certain absolute pitch as starting point. The only factors, then, to which the agreement can be due, are cultural ones. The great number of possible choices renders independent origin

⁴ The basis of the Chinese tone-system is the tone given by a panpipe reed of 230 mm. length, this length constitutes a Chinese foot-measure. (See p. 19 of the book.) The norms of measurement were carefully corrected every year in China, in order to "assure harmony with the order of the universe." For further data see the reference given in footnote 8 of this review.

very unlikely; the absolute pitch of the instrument was probably diffused together with the instrument's standard size and measurements, and is now preserved.⁵

Among the cases that von Hornbostel has found so far, one is of especial interest to American anthropology: the agreement of the absolute pitch of panpipes from northwestern Brazil, prehistoric Peru, and the Solomon Islands in Melanesia.⁶ (At this latter locality at least, we know definitely that new instruments are made by carefully copying old ones.⁷) The circumstance that also the musical system based upon the ground-tone (and even the technic of tying the pipes in rows) is the same in all three cultures, only strengthens the case. But the identity of the *pitch* of the starting tone of the system is the salient point, which is overlooked sometimes. The identity of the musical system, by itself, does not necessarily imply much of consequence, since acoustical principles on which the tuning of an instrument is based, may be easily discovered independently.⁸ More recently, von Hornbostel has arrived at the conclusion that the length defined by the absolute pitch of the basic reed on these panpipes agrees or is in undeniable connection with the classical Chinese and Babylonian foot-measures.⁹

The absolute pitch of the basic tone in an instrumental tonal system (and with it the level on which the system is placed) is musically an unessential datum, it is not startling then, that it is defined by factors extraneous to the musical system and even to the musical realm. More unexpected is the conclusion to which recent investigations (chiefly of von Hornbostel) lead: The structures of Oriental musical tone-systems, based in first place upon the physical-acoustical laws of the musical instruments (and not upon preferences of certain melodic or "harmonic" qualities of successive intervals), are in second place established by utilizing factors extraneous again to the musical realm.⁹ The successive distances of the subdivisions of a string where marks are placed at which the string is shortened in playing, or the distances between the fingerholes of wind-instruments, furnish relations which have their origin obviously in mathematical speculation and in the subdivisions of measuring rods, but have no primary connection with strictly *musical* requirements. Musical tendencies may be strong enough to cause corrections and additions only to the system. But even these preferences may in part go back to habits acquired through the use of other, in origin similar, instrumental tone-systems, and in part only to melodic habits established, let us say, during the evolution of the unaccompanied vocal music of the same culture.

⁵ Von Hornbostel, Ein akustisches Kriterium für Kulturzusammenhänge. Zf., 43: 601ff., Berlin, 1911.

⁶ Summarized in Ein akustisches Kriterium, etc.

⁷ Von Hornbostel, Die Musik auf den Nordwestlichen Salome-Inseln im Bismarck-Archipel. In R. Thurnwald, Forschungen auf den Salome-Inseln und dem Bismarck-Archipel, 1: 482 ff., Berlin, 1911.

⁸ Von Hornbostel, Die Massnorm als kulturgeschichtliches Forschungsmittel. Festschrift P. W. Schmidt, pp. 303-321, Vienna, 1928.

⁹ Summarized in von Hornbostel, Musikalische Tonsysteme. Handbuch der Physik, ed. by H. Geiger and K. Scheel, 8: 425-449, Berlin.

By comparing the systems established on various instruments and further attempting to bring all of these into a mathematically and logically satisfactory harmony, Oriental musical theory has finally progressed to a complexity with which musical practise does not cope any longer on all points. The tone material that the musician is given by his instrument is too abundant and he must select certain combinations. This leads us to considering the mode-concept, in contrast with our scale-concept.

In India, a certain piece of music or a song stands in a certain *rāga*, in Arab music in a certain *maquām*. An analysis of a number of songs said to belong to the same *rāga* (or *maquām*), shows a considerable amount of variation in the tone-material of the single songs, although certain tone-combinations, or rather, certain melodic turns recur from song to song. But setting analysis for a while aside and merely listening to the songs, it soon appears that common to all songs and thus characteristic for the *rāga* is a certain shape or outline of the melody (the "Gestalt"), which can be covered only partly by describing it in terms of preferred tone-combinations. And such are exactly the conditions that prevail in primitive tonality too, only that the theoretical superstructure is missing there.

Taking tonality (of a song) as a system of interrelated melodic functions and the actually occurring intervals as bearers of these functions, an interval cannot be taken as an entity of independent existence. It is present only as a unit of the contextual structure and, in addition,—should this structure be taken in abstracted conception as a system—also as a point in which reference taken to this system is vested. On this basis some distinctions can be made. In *primitive* melody the shape that the functions assume (the actual extent of the intervals) possesses great flexibility. There is no underlying theoretical tone-system of reference from the fixed subdivisions of which the intervals must be chosen. Thus a certain amount of variation in the intonation, from which the investigator must abstract what he will consider the system implied even if not established. In Oriental melody (especially in Hindoo and Arab music: *rāga* and *maquām*) underlying tonal systems of reference have been established. In consequence, it is not variation of the appearance of an interval that satisfies the varying contextual setting, but the substitution of one interval for another, both being still expressive of the same melodic function. In Occidental music finally, the substitution of one interval for another, in varying context, implies at once also a change of harmonic relations. These latter constitute by themselves a second, additional system of reference which has grown even at the expense of the primary, melodic medium;¹⁰ pure melody is present no more.

Common to primitive and Oriental music is the flexibility in expressing melodic functions. From this aspect must be understood the variations of intonation in the first, which are often interpreted, not quite justly, as due to a rudeness of the standards and of the technic of the intonation. The *rāga* and *maquām* concepts, on the other hand, are the result of a compromise between the primary aspect of melodic

¹⁰ Especially so since J. S. Bach's compositions and the contrapunctic development.

flexibility and the cultural achievement of defined, established tone-systems. The very same flexibility is still found in the modes of early medieval church-music and is preserved in older layers of European folk music, or, in a more free form, in the recitation of the ritual in the Catholic and Jewish churches. In these Western forms, then, the melodic principles are still preserved that are functioning in primitive and Oriental music. All such forms that are based upon melodic flexibility, may be considered also as being based upon *modes*. In comparison with such forms, *scale* in our sense is a melodically much more limited concept, fixed into its rigidity by the constant references to a secondary system, that of harmonic relations.

Dr. Lachmann devotes in his treatment one chapter each to tonal systems, scales, melody-types, rhythm, polyphony, and music as a cultivated art in its social and conceptual setting. Within these headings, four culture complexes are treated: China and Japan, Farther India and Malaysia (Java and Bali), India, and the Arab-Islamic culture from Persia to Morocco. A selected bibliography, comparative time-table, valuable musical examples, and a few pictures complete the treatment. The musician, anthropologist, and psychologist will peruse this little volume with gain.

GEORGE HERZOG

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DISCUSSION AND CORRESPONDENCE

POTTERY IMPLEMENTS OF THE ANCIENT BASKET MAKERS

On a recent visit to the Jicarilla Apache for field study, I recorded their method of making pottery, which I shall have in print shortly with photographic illustrations. I collected a full set of implements used, and on the basis of this I have been able to identify with a high degree of probability the following objects illustrated and referred to in Kidder and Guernsey, *Archaeological Explorations in Northeastern Arizona*, Bulletin 65, Bureau of American Ethnology, 1919;

Plate 84, figure 11 (opposite p. 186). This curved bow with yucca fiber strands is identical in size and principle with tools used by the Jicarilla Apache for shaping and smoothing pottery vessels. One pottery-maker made two such implements in my presence out of pine twigs and thin white commercial cord. The two had different angles for the curves. The implement with the sharper curve was used to smooth and shape the *inside* body of the bowl, the one with the shallower curve was used to shape the inside near the rim, and to make a reflexed base from *outside*. These processes in work I have illustrated in photographs. In Kidder and Guernsey's text (p. 185) the description fits my specimens. Note especially "except for some wear or battering at the bend, the object is unworked." This is exactly the place where the convex side of the bow rubs against the clay in smoothing and shaping. I have not the Hough report at hand and have not seen the "crook pahos" figured by him. The principle of this utensil seems to be that the pottery-maker can make in a few minutes a shaping tool of any desired curve.

Plate 84, figure 10, may be an implement used for smoothing the *outside*. The Jicarilla Apache pottery-maker used a plain stick for this purpose, but it was slightly longer than figure 10.

On page 187 Kidder and Guernsey describe six flat pebbles which show no wear or traces of paint. Such pebbles are picked up as needed by the Jicarilla pottery-maker, used for polishing, and then discarded. The Jicarilla potter does not keep any special polishing stones in the way the Pueblo potter does.

The items mentioned above all come from ancient Basket Maker sites, from which no pottery sherds were recovered. Kidder and Guernsey (pp 208-209) suggest, nevertheless, a strong probability that pottery was made by the Basket Makers, that it was less abundant than among the Cliff Dwellers, and that it was probably crude. The rarity and crudity would fit pottery of the Apache type, and I think the identification of the above objects is further substantiation of the probability.

GLENN WELTFISH

PAWNEE, OKLAHOMA

WHILE-ON-RED POTTERY FROM COCHITI PUEBLO

While at Cochiti in October, 1930, I found that besides the well-known black-on-white pottery, a polished red ware with designs in white slip paint was also being made. To my knowledge the fact has not been recorded. The Cochiti process of

making the pottery is similar for both types, the difference being in the slips and decoration. In the black-on-white Cochiti type, the *thin* solution of white slip is applied and dried, and reapplied as many as eight times; after the surface is entirely dry, it is finally polished with a white cloth to make the slipped surface smooth and somewhat glossy. A thick red slip is then applied to the base and when still damp it is polished with a polishing stone, making this part of the surface very glossy. The red ware differs from the other in that no white slip is applied, but the thick red slip is applied directly to the surface and rubbed while still damp with a polishing stone, which imparts a high polish to the surface (similar to the polish of San Ildefonso ware). Upon this surface the design is painted in a *thick* solution of the same white slip used for background of the black-on-white pots. The slip is "Domingo white."

GENE WELTFISH

PAWNEE, OKLAHOMA

DR. MERRIAM'S "TLÓ-HOM-TAH'-HOI"

In his article entitled "The New River Indians, Tló-hóm-tah'-hoi," published in AMERICAN ANTHROPOLOGIST, April, 1930, Dr. C. Hart Merriam has made a number of statements which I believe are incorrect, and has in consequence reached conclusions which would appear to be invalid.

Dr. Merriam secured from an Indian informant, said to be a full-blooded member of the New River people in northern California, a vocabulary of thirty-five words. The language represented by this collection Dr. Merriam declares to be wholly new and unrelated to that of any other tribe. It is obvious at a glance that three of the words given are duplicated (baby = little one; black = black bear, hot weather = it is hot) so that actually only thirty-two different terms were secured. Of these, twelve are recognized by Dr. Merriam as Chimariko and two as Shasta, leaving a residuum of eighteen (Dr. Merriam says twenty) which he states (p. 283) "appear to be quite unlike those of any known tribe." Unfortunately Dr. Merriam's study of his material seems to have been very incomplete, since the fact is, that out of the thirty-two words given, eighteen are comparable with Chimariko, six with Shasta, and four with New River, leaving only four for which no reasonable analogues are available. All of these four words (viz., dipper-basket, black, no, flicker) are words, the equivalents for which are quite unlike in all Shastan languages, so that failure to find comparable forms for them is certainly not a sufficient basis on which to assert a claim for a distinct language. On the evidence submitted by Dr. Merriam, therefore, there is no foundation at all for setting up a "new language" to be called Tló-hóm-tah'-hoi. In the following list the thirty-two words are given with their known parallels.

English	Tlô-hom-tah-hoi	
Man	ke'-hish	Sh. ic; Achom. is, qa is; New River ge ic (qa, ge, is the article)
Woman	kit'-te-shahp'-ho	N R. kitasa'pxau
Head	hã'-muk	Chim. hima
Eye	he'-suk	Chim. husot
Heart	ke-wah'-sho	Sh. iwa'sut

Good	his'-sik kin'-tah	Chim. hisikni
Fire	ah'-po	Chim. ā' pu
Rock	kah'	Chim. qā'a
Wood	pā-sho'-ah	Chim. pusū'a
Knife	kā'-mutch-kah'-ni	N.R. ki'matsu kana'ai
Pipe	ah'-nah-pah	Chim. onī'pa
Tobacco	koo'-mah-tsā-hwah	Sh. o'wa; Chim. ūwu (cf. also possibly Sh. ām'mitsu = from here, i e. "tobacco from here," i.e. local tobacco)
Basket	pow'-wah	Chim. powa (open tray-basket)
Burden-basket	han'-nah-me-shah'-tin	Sh. xano; N.R. xanimisat'in
Dipper-basket	kā'-in	
Acorns	kāp'-ne	Sh. Cf. kapō'Empig = acorn soaking-place
Salt	i'-ke	Chim. aqi
It is hot	el-lō	Chim. elo- (hot)
Big	chā'-wah	Chim. djewu
Little, little one	o-lā chit'-tah	Chim. ulēta
Black	pan'-nal-lah	
Yes	hā'-mo	Chim. himō
No	kah-to'-mah	
Grizzly-bear	se-sam'-lah	Chim. tcisa'mra, djicamla (black-bear)
Elk	kah'-pe-tin	N.R. kapat'ini
Deer	ah'-no	Sh. arō'
Dog	ke-sho'-ki	N.R. kicuk'oi (cf. Sh. icuk'wi = urine)
Great horned owl	ho-rah-ruk'-kum	Chim. hāra
Blue grouse	mum'-lah-trā	Chim. Cf(?) -mum- = to run
Bluejay	so-ko'-chā	Chim. tsok'okotce
Flicker (Colaptes)	chā-am-men	
Grasshopper	sāt-too	Chim. tsa'tur

Continuing his article, Dr. Merriam discusses the relation between his "new" language, Tlō-hōm-tah'-hoi, and the brief material collected by me in 1903, and called for lack of a better name, New River dialect. This material, I might say, was obtained during a somewhat hurried reconnaissance, and although it was hoped that further data might be secured on a subsequent occasion, the opportunity for doing so never came. In my short article in the *AMERICAN ANTHROPOLOGIST* (7: 213-217) only seven of the New River words secured were given, inasmuch as I was at the moment concerned merely with trying to establish the fact of a dialectic difference. In all, however, twenty-seven terms were actually obtained. Of these, there are six in common with Dr. Merriam's Tlō-hōm-tah'-hoi, and comparison shows at once that the forms are essentially identical, allowance being made for Dr. Merriam's aggravatingly unscientific spelling. Six words form a very slender foundation on which to base valid conclusions, but the fact that out of thirty-two words of the so-called Tlō-hōm-tah'-hoi and twenty-seven of the New River we have an identity in every instance in which the same word occurs in both lists, offers grounds for believing that both Dr. Merriam and I have recorded fragmentary vocabularies of the same Shastan dialect or language.

In what he has to say anent the Konomihu, Dr. Merriam is, I believe, in some respects mistaken. He states that the material secured by me in 1903 and published in 1907 (AMNH-B 17:495-498) as Konomihu, is really not Konomihu at all. Comparison, he says, of my "supposed" Konomihu with his own "excellent and doubly-checked Konomihu vocabularies" reveals only five possible cases of resemblance. These he gives as follows—

<i>English</i>	<i>Konomihu</i> (R.B.D.)	<i>Konomihu</i> (C.H.M.)
White Fir	sa'maka	e-sah-kwi-ah'-he-ho (cf. Sh. hohu = tree)
Incense Cedar	ki'naxo	in'-nă ^{eh} -hah'-ho (cf. Sh. inaxa 'x)
Hazel	xa'skipama	hah'-soo-ko'-ho
Lake	th'napxau	ip-hah'-nah (cf. Sh. ipxă'nnā)
Obsidian	k!e'tspai	ep'-ho'hah'-kwi

Of these his second and fourth are obviously straight Shasta.

Dr. Merriam then argues that since my deprecated Konomihu does not agree with his own "certified" Konomihu, it must therefore be New River, or as he calls it "Tlô-hôm-tah'-hoi." Logically this argument appears a bit weak. There is, however, a modicum of actual evidence in the matter. Between the forty-three Konomihu and twenty-seven New River terms collected by me, there are six in common. It is regrettable that there are not more, but as I stated in my original paper, the Konomihu material was secured with difficulty, and comprised only such random terms as my informant could remember. There was no opportunity to secure a systematic list. The six terms common in both lists are as follows—

<i>English</i>	<i>Konomihu</i>	<i>New River</i>
Hand	ki'poman	k'xus (but cf. ki'oman = foot)
Head	ki'na	ki'nuux
Man	ki'sapuhiyu	ge't
Salmon	yă'nni	ki'tan
Ground Squirrel	ki'pnikawats	ka'tsag
Water	ku'ma	ka'ats

Of these the first two are clearly similar, and the third shows the common Shastan stem for man, i.e., ic. The others show little or no resemblance. This is certainly not evidence of identity, although it is clear that both are in some degree related as members of the Shastan stock. In this connection it might be noted that if we examine the five terms given by Dr. Merriam from his own Konomihu vocabularies, so highly praised by him, it appears that two of them are pure Shasta, viz. cedar and lake. It is to be hoped that this Konomihu material of Dr. Merriam's may soon be published, so that it may be possible to determine just what the language really is. Incidentally, it is interesting to find that a language, which somewhat careful inquiries in 1903 showed had been extinct as a spoken language for many years, should still be in use by several persons of both sexes nearly thirty years later. My informants, Mrs. Grant and Mrs. Brizell at Forks of Salmon, were emphatic in declaring that they knew of no one then living who could speak the language.

Dr. Merriam further takes me to task for saying that the New River dialect is closer to Shasta proper than is Konomihu. On the basis of all the data available I

must, however, still reiterate the statement. For whereas recognizable Shasta parallels are to be found for only 15 per cent of the Konomihu forms, these amount to 48 per cent for the New River dialect, as may be seen from the following table:

<i>English</i>	<i>Konomihu</i>	<i>New River</i>	<i>Shasta</i>
Eye	ki'oi	ki'oi	oi
Head	ki'na	ki'nnux	i'nnux (hair)
Man	ki'sapuhiyu	ge ic	ic
Hand		ku'xus	axu'sig (finger)
Tooth		ki'tsau	i'tsau
Cedar	ki'naxo		i'naxaxo, na'xo
Grizzly-bear	qāmqa'tsinèau		a'tsa
Sand	ki't!lu ts		ta'tsu
Fire		ki'mma	i'mma
Water		ka'ats	a'tsa
Wood		ka'au	a'wa
Mt Lion		ki'cin	i'ssi
Ground squirrel		ka'tsag	a'tsak
Salmon		ki'ttun	ki'tEr
House		ku'mmau	u'mmE
Pack-basket		xa'nimisatin	xa'no

In Dr. Merriam's many years of painstaking study of the California Indians he has accumulated a great store of very valuable data. However, I cannot but feel that (to quote his own words in referring to *my* conclusions) in this recent article some of *his* "assumptions" have also been "unlucky guesses," and that "such inferences from insufficient evidence should sound a warning against the all too frequent offense of guessing."

ROLAND B. DIXON

THE SPANISH OF THE CHILAM BALAM DE CHUMAYEL, YUCATÁN

On none of the known American aboriginal languages does there exist a vast body of manuscript material, especially dating from the second half of the sixteenth and the first half of the seventeenth centuries, as on the Maya proper of Yucatán. These documents, most of which are written in Maya only, are known to scholars under the somewhat strange designation of "Libros de Chilam Balam." Chilam Balam is supposed to be the name of sorcerers. Most important among this class of aboriginal literature are the Chilam Balam de Chumayel, and those of Tizimin, Kaua, Calkini, Tecax, Nah, and Ixil. Photostat reproductions of these early Maya documents are now preserved in the Bowditch-Gates collection of the Peabody Museum, Harvard University.¹

The translation into modern languages of most of these valuable early documents on Maya ethnology continue to be a *pium desiderium*.

Fortunately, the book called Chilam Balam de Chumayel was reproduced in facsimile some years ago by the late Dr. George Byron Gordon in the Anthropolo-

¹ For further details, see the splendid bibliography and appraisement in Alfred M. Tozzer, *A Maya Grammar* (PM-P, v. 9 [Cambridge], 1921).

gical Publications of the University of Pennsylvania, vol. 5, 1913,² but no attempt has since been made to translate the entire Maya text. Thus, in Costa Rica, in 1925, the writer suggested to the Yucatecan scholar, Dr. D. Antonio Mediz Bolio, Mexican Minister to that Republic, the translation of the codex referred to and notwithstanding the many difficulties, some of which seemed even to specialists to be insurmountable, Dr. Mediz Bolio satisfactorily accomplished his arduous task. The Spanish translation³ of the Chilam Balam de Chumayel which the learned Yucateco now offers to students is not entirely free from error, yet he has at least given us a more or less solid basis for further and certainly more precise study of that Maya manuscript.

In addition, the research consummated by Dr. Mediz Bolio will contribute, we hope, to stimulate linguistic investigations, which, especially regarding the Maya-K'iché culture area, have so often been treated in a "stepmotherly" manner. It cannot be emphasized too strongly that most archaeologists have tried, sometimes in vain, to explain successive development of the different phases and shades of the Maya-K'iché material culture, yet *without taking into due account the all-important role which language plays in archaeological problems*.

Regardless of the occasional errors that may occur in the Spanish translation of Maya manuscripts, we earnestly congratulate Dr. Antonio Mediz Bolio for his important contribution to the study of ancient Maya civilization.

RUDOLF SCHULLER

PREHISTORIC POTTERY AND CULTURE RELATIONS IN THE MIDDLE GILA

Under this title Florence M. Hawley published a paper in the July-September issue of the AMERICAN ANTHROPOLOGIST for 1930 (vol. 32, no. 3). Although I do not venture to express a definite opinion about the archaeological value of Miss Hawley's paper, which, at any rate in a measure, gives evidence of painstaking and careful study of the subject, I nevertheless wish to make a few critical remarks with regard to the history of exploration in the region which Miss Hawley calls the "Middle Gila." In the introductory part of her paper she says:

Not until the last two or three years has this region been more than cursorily examined by archaeologists.

And in the summary the author alleges:

² Regarding the Gates' reproduction of the same codex, see Tozzer, *op. cit.*, 233.

³ Libro de Chilam Balam de Chumayel. Traducción del idioma Maya al castellano por Antonio Mediz Bolio, natural y vecino de Mérida de Yucatán, en México. Ediciones del "Repertorio Americano." Imprenta y Librería Lehmann (Sauter & Co.), San José, Costa Rica. 1930. 8°, 124+xli numb. pp., 1 unnumb. p., indice.

How masterfully the same scholar has treated Maya psychology one may infer from his noteworthy book entitled *La Tierra del Faisán y del Venado* (Buenos Aires, 1922). The title "Land of the Turkey (and of the Deer)," as frequently cited by Selser and other scholars, is incorrect, for *cotz*, in that case, means "pavo montés", a kind of pheasant (*Crax* sp.?). Thus the title, translated, reads "The Land of the Pheasant and of the Deer."

The Middle Gila culture was . . . about to pass into that oblivion from which archaeologists have but recently tried to bring it back to life.

Both assertions are untrue. It would seem that the author ignores the fact that during sixteen months—from February 1887 to May 1888—the Hemenway Southwestern Archaeological Expedition, under the leadership of the late Frank Hamilton Cushing, explored a considerable part of the Gila and Salt River valleys which, in the main, corresponds with Miss Hawley's "Middle Gila." The reconnoitering trips by different members of this expedition, of which I was physical anthropologist, extended from Cave creek in the north to Fresno in the south, and from Gila bend in the west to Pinal in the east. The headquarters of the Hemenway expedition was established in the Tempe region while several side camps were established in succession.

Many groups of ancient Pueblo towns of the "Middle Gila" were located and excavated, yielding large collections of pottery, stone implements, shell and shell ornaments, human and animal remains. Numerous prehistoric irrigation canals were traced, of which one was at least 38 miles in length.

Later the expedition continued its excavations at Halonawan and other ancient Zuni towns until about the middle of 1889. At that time unforeseen circumstances brought to a close the expedition's activities. So far as I am aware, the archaeological collections were not studied or described in detail. The skeletal collections were studied and a description of them published in 1891 under the title, *The Human Bones of the Hemenway Collection* in the U. S. Army Medical Museum in Washington. The authors of this valuable work—Drs. Matthews and Wortman—are not to be blamed for carefully omitting my name and the large part I took in collecting this material. The fault lies with him who was responsible for the publication of *The Human Bones*.

The foregoing retrospect proves that already forty-three years ago the "Middle Gila" was "more than cursorily examined." Even as far back as 1882–1883 the late Adolphe F. Bandelier, who later joined the Hemenway expedition, explored and surveyed parts of the "Middle (and Upper) Gila." At least Bandelier traveled there about the same time as I during my first journeyings in the Southwest. Although a final report of the Hemenway expedition never was published, a few papers about its preliminary results were printed, not to mention the numerous notes and letters in several American and foreign reviews and magazines of those days. Therefore it seems strange that an American author writing in 1930 on prehistoric archaeology of southern Arizona should absolutely ignore the valuable work in this field done by pioneers like Cushing and Bandelier well nigh fifty years ago.

To justify my assertion I will now enumerate in chronological order the titles of some of the papers dealing with the work of the Hemenway expedition. As I am partly quoting from memory, I cannot give the exact titles of Cushing's and Bandelier's memoirs. Purely anthropological publications, besides the one already mentioned, by Dr. Jacob L. Wortman and the anthropologist of the Hemenway expedition, are not mentioned here.

Sylvester Baxter, *The Old New World*, an account of the explorations of the Hemenway Southwestern Archaeological Expedition in 1887-88, under the direction of Frank Hamilton Cushing. Salem, Mass., 1888.

Cushing's elaborate and excellent paper on the aims and preliminary results of the H. S. W. A. E. in *Compte rendu de la session du Congrès International des Americanistes*, Berlin, 1888.

Herman ten Kate, *Fouilles archeologiques aux Etats Unis et au Mexique* (C. R. des Séances de la Société de Géographie de Paris, Séance du 18 Janvier 1889.)

Herman ten Kate, *Eenige mededeelingen omtrent de Hemenway expeditie* (Tydschr. Kon. Nederl. Aardryksk. Genootsch., 1889.)

Herman ten Kate, *Over Land en Zee*, Zutphen, 1925. (Chapters 6 and 7 deal with the Hemenway expedition.)

Finally, I wish to make two remarks, with regard to the summary of Miss Hawley's paper. She says that the

Use of the life line might indicate some relationship with Zuñi, Sikyatki, Awatobi, and other pueblos of the Little Colorado drainage, where this relatively localized symbol was used.

This "might indicate" seems somewhat odd to one who knows the opinion of Cushing about the relationship of the prehistoric sedentary Indians of the Gila and Salt River valleys, Tusayan, and the present Zuñi and Hopi Indians. Besides the life line as a pottery decoration there are scores and scores of parallels indicating a close relationship of the "Middle" and "Upper Gila" cultures and the present pueblo culture in general. Truly, as Cushing said,

Archaeology is simply ethnology carried back into prehistoric times.¹

Miss Hawley further states that

No evidence of forced abandonment of this region [i.e., "Middle Gila"] . . . is found.

On the contrary, Cushing has proved beyond a doubt that earthquakes were one of the main causes of the abandonment of whole towns (*vide i.a.*, Baxter, *op. cit.*, 24-27, where this question is thoroughly treated).

Although Miss Hawley's interesting paper tempts further comment I must refrain. Prompted by a feeling of justice I only wanted to recall an echo of old Southwestern days, in order to give full credit to a departed friend and comrade, which others, sometimes involuntarily, have denied him. Cushing's voice is now still. What wonder that a late member of the Hemenway expedition reminds of what its leader performed in the "Middle Gila." Verily, oblivion in this case is wholly undeserved.

HERMAN F. C. TEN KATE

CARTHAGE, TUNESIA.

¹ Baxter, *op. cit.*, 3.

REPORTS

PROCEEDINGS OF THE AMERICAN ANTHROPOLOGICAL ASSOCIATION FOR THE YEAR ENDING DECEMBER 1930

The American Anthropological Association held its twenty-ninth annual meeting at Western Reserve University (School of Medicine), Cleveland, Ohio, on December 29-31, 1930, in conjunction with the American Folk-Lore Society, the American Association of Physical Anthropologists, and Section H, American Association for the Advancement of Science.

COUNCIL MEETING DECEMBER 29, 5:00 P.M.

President A. M. Tozzler in the chair

The minutes of the Poughkeepsie meeting were not read, but approved as printed in the AMERICAN ANTHROPOLOGIST, volume 32, number 2.

The Treasurer's report, in the absence of Mr. Gifford, was presented by Dr. Tozzler.

REPORT OF THE TREASURER

REGULAR FUND

Receipts

Balance on hand, December 9, 1929.		\$ 2,982.43
American Ethnological Society	\$ 958 00	
Anthropological Society of Washington	275 00	
Central States Branch	420.50	
Annual membership dues of A. A. A.		
1929	\$ 90 00	
1930	3,520.14	
1931	139.20	
1932	6.00	
1933	1 50	3,756 84
		<hr/>
Sale of publications	533 42	
Reimbursements (incl. Index Fund, \$2,000).	4,949 43	
Interest.	120.00	
Royalty Memoirs Fund	33.00	
		<hr/>
		11,046 19
		<hr/>
		\$14,028 62

Disbursements

AMERICAN ANTHROPOLOGIST:

George Banta Publishing Co. and Oakland National Engraving Co.

Printing .	\$3,880.19	
Illustrations	606.22	
Distribution	139.26	
Storage	75.00	
Insurance	8.50	
Reprints	462.27	
	<hr/>	
		\$5,171.44
Editor's expenses		543.96
Treasurer's expenses		
Salary	\$340.00	
Office	121.34	
Membership	44.76	
	<hr/>	
		506.10
Secretary's expenses		101.68
Out-of-print publications.		118.28
General Index...		992.79
Memoirs.		3,070.20
		<hr/>
		\$10,504.45
Cash on hand, November 30, 1930 (incl. Index Fund, \$1,007.21)		3,524.17
		<hr/>
		\$14,028.62

Resources

Cash on hand, November 30, 1930		\$3,524.17
Due from sales:		
1929	\$ 21.90	
1930	152.50	\$ 174.40
	<hr/>	
Due from dues:		
1929		
American Anthropological Association	\$ 102.00	
American Ethnological Society	5.00	107.00
	<hr/>	

1930

American Anthropological Association	372 00	
Central States Branch	40 00	
American Ethnological Society	5 00	417 .00
<hr/>		
Due from reimbursements:	111 57	809 97
	<hr/>	<hr/>
		\$4,334 14

Liabilities

Membership dues for 1931-33 already paid	\$ 146.70	
Net excess resources over liabilities	4,187.44	
	<hr/>	
		\$4,334.14

PERMANENT FUND

Receipts

Balance, December 9, 1929		\$2,916 60
Interest on Savings Account, Jan 1, 1930	\$ 52 24	
Interest on Liberty Bonds, April, 1930	6 36	
Interest on Savings Account, July 1, 1930	54 37	
Interest on Liberty Bonds, Oct. 1930	6 36	119 33
	<hr/>	<hr/>
		3,035.93

Investments

Liberty Bonds (three). . .	\$ 291.09	
Cash in Savings Account	2,744.84	
	<hr/>	
		\$3,035.93

EXPENDITURES AGAINST 1930 BUDGET

	<i>Allowance</i>	<i>Spent*</i>	<i>Balance</i>
Secretary's expenses	\$ 100.00	\$ 88 68	\$ 11 32

* This column lists net expenditures (i e., gross expenditures less reimbursements).

Editor's expenses

Editor's assistant	\$ 480 00	480 00	
Office expenses	100 00	63 96	
	580 00	543 96	36 04

Treasurer's expenses

Treasurer's assistant	480 00	340 00	
Office expenses	240 00	166 10	
	720 00	506 10	213 90

AMERICAN ANTHROPOLOGIST

Balance due on number 4 of 1929	621 19	621 19	
Printing ..	2,950 00	3,137 18	
Illustrations	500 00	455 69	
Reprints	400 00	304 37	
Distribution	200 00	139 26	
Storage of back numbers	60 00	75 00	
Insurance on stored publications	10 00	8 50	
	4,741 19	4,741 19	

Out-of-print publications

Purchase	100 00	31 93	
Photostat reproductions	200 00	86 35	
	300 00	118 28	181 72

Memoirs

540 12	540 12	
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Totals

\$6,981 31	\$6,538 33	\$442 98
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As detailed in the Editor's report the Association is now the owner of a General Index Fund. From an original gift of \$2,000 the Association now has a balance of \$1,007.21 in its savings account, the principal and interest to accumulate for the publication of its second general index.

On the whole 1930 has been a poor year for the Association owing to resignations and non-payment of dues, no doubt due in part to the financial depression. The Permanent Fund increased \$119.33. The balance in the Regular Fund decreased \$465.47, owing to the large balance paid on the 1929 AMERICAN ANTHROPOLOGIST.

The time of the Treasurer's assistant (one and one quarter days a week) was almost entirely consumed by routine work, so that a total of only forty-eight and one half hours was devoted to the campaign for new members, of whom four were obtained. The financial depression would doubtless have militated against success, even if time had been available for more vigorous prosecution of the campaign.

The Archaeological Institute of America, through Professor Rollin H. Tanner, its secretary, has consented to mail the Association's membership campaign literature to its members who are not already Association members. The probable cost will be about \$150, for which an appropriation should be made in the 1931 budget. This should yield a considerable accession of members to our ranks.

Of out-of-print numbers the firm of Breitkopf and Hartel reproduced 105 copies of volume 26, number 3 at a cost (including carriage) of \$86.35. An estimate of \$87 RM has been made by the above firm as the cost of 100 copies of volume 27 number 1. The appropriation of \$200 for 1931 should cover the cost of reproducing this and one other out-of-print number.

Receipts from sales (\$533.42) equalled the amount received in 1929. Moneys not yet collected for sales total \$174.40.

Each year a considerable part (in 1930, \$44.76) of the treasurer's budget allotment is debited with items that are neither office expense nor salary of assistant. These items are dues transmitted to affiliated societies, refunds, notary fees, bank debits for checks to be collected and bank exchange charges. These are shown separately in this year's statement, and in the budget recommendations for 1931 are called "membership charges."

During 1930, as authorized by the Council, a loan of \$550 was made to the American Ethnological Society and subsequently repaid.

Respectfully submitted,

E. W. GIFFORD,

Treasurer

The above Report was accepted and an Auditing Committee (Kroeber, Loeb) appointed.

The report of the Auditing Committee will appear in our next issue.

EDITOR'S REPORT

The Editor has been away from Berkeley since May 15, and the duties of his office devolved on Associate Editor E. W. Gifford. To him the Editor desires, first of all, to express his gratitude for the faithful performance of the tasks connected with the position and superadded to Mr. Gifford's customary services as Treasurer of the Association. The following report is naturally based on information supplied by Mr. Gifford.

The outstanding feature to be reported is the gift of \$2,000 by the Carnegie Corporation of New York, through the Council of Learned Societies, and made possible through the efforts of Chairman A. V. Kidder of the Division of Anthropology and Psychology, National Research Council. The purpose of the gift was to publish a general index of the Association's publications through 1928. The index was prepared by Dr. Kidder and has been published at a cost of \$992.79, leaving a balance of \$1,007.21 toward the publication of another general index five or ten years later. Meanwhile the balance will earn 4 per cent interest.

Two important Memoirs (Parsons, *The Social Organization of the Tewa of New Mexico*, and Liang, *New Stone Age Pottery from the Prehistoric Site at Hsi-Yin Tsun, Shansi, China*) as well as the *General Index*, were distributed to members during 1930. The first memoir was financed altogether privately, the second in part.

The Association's greatest need is a memoir subsidy, or else an endowment fund from the proceeds of which its memoirs may be regularly issued. The report on our memoirs, prepared by Professor John H. Marshall of the American Council of Learned Societies, may bring aid possibly from some quarter.

Although the 1930 AMERICAN ANTHROPOLOGIST has fewer pages than the 1929 volume it cost more. On account of the smaller type used the cost per page has increased from \$1.26 for an eleven point page to \$1.62 for a ten point page, from \$1.50 for a ten point page to \$2.10 for a nine point page, and from \$1.94 for a nine point page to \$2.56 for an eight point page. It is therefore no longer possible to print the 752 pages authorized by the Council without asking for an increased appropriation. An increased appropriation large enough to attain this is not possible because 1930 has been a poor year financially and we are still carrying part of the debt imposed by the exceptionally large 1929 AMERICAN ANTHROPOLOGIST. However, in the suggestions for the 1931 budget the treasurer has increased the amount for printing from \$2,950 to \$3,150.

It should, however, be noted that the change of type during the year means that 717 pages contain a considerably larger body of material than in previous years. Ultimately we are probably saving some money on stock, though a careful check would be required to determine the exact financial results of the change.

Respectfully submitted,

ROBERT H. LOWIE
Editor

It was voted that the Editor's report be accepted.

REPORT OF THE BUDGET COMMITTEE

The Executive Committee, acting as a Budget Committee and having made certain changes in the relative amounts allotted for the Editor's and Treasurer's expenses respectively as recommended by the latter, submitted the following budget for 1931:

1. Secretary's expenses	\$ 100.00
2. Editor's expenses	720 00
Editor's assistant	
Office expenses	
3. Treasurer's expenses.	680.00
Treasurer's assistant	
Office expenses	
Membership charges	
4. Membership campaign.. . . .	150.00
(Archaeological Institute of America)	
5. AMERICAN ANTHROPOLOGIST.. . . .	4,424.42
Balance due on number 4, 1930	\$ 104.42
Printing	3,150.00
Illustrations	500.00
Reprints...	400.00
Distribution.	200.00
Storage of back numbers	60 00
Insurance on stored publications.	10.00
6. Out-of-print publications.. . . .	300.00
Purchase	100.00
Photostat reproductions	200.00
Total.	<u>\$6,374.42</u>

The budget submitted was approved by the Council.

Mr. W. K. Moorehead, representing the board of trustees of Philips Academy, Andover, Massachusetts, extended an invitation to the Association to meet there in December, 1931. This invitation was accepted.

Dr. F.-C. Cole moved that a former action by the Council, viz., that the annual meetings of the Association should not be held west of the Appalachians, be rescinded. The motion was carried.

Professor Cole presented a communication, signed by M. L. Raney, Director of Libraries and Secretary, Subcommittee on Copyrights and Patents, A.A.A.S., calling attention to the pending Vestal Bill, H.R. 12549, now on the calendar of the

House of Representatives. "This bill represents the fifth general revision of our copyright statutes, and is rendered notable by its clearing of the way for our entrance into the International Copyright Union," from which the United States, almost alone among nations of the first rank, is barred. It was moved and carried that a resolution be prepared commending the bill but with the qualifications suggested by Mr. Raney. A Resolution Committee consisting of Lowie, Sapir, Roberts, and Herskovits was appointed.

It was moved and carried that the Association formally endorse, by a resolution, the Exposition of Indian-Tribal Arts, which will open in New York City in November 1931.

A communication signed by W. J. Robbins and Charles W. Greene, University of Missouri, requesting a resolution in support of more extensive federal aid to the states and territories for research in the fundamental sciences, was tabled.

It was suggested that a communication from the National Advisory Council on Radio in Education requesting cooperation be referred to the Division of Psychology and Anthropology of the National Research Council.

ANNUAL BUSINESS MEETING

Tuesday, December 30, 2:00 P. M.

The following officers, new Council members, representatives to various Associations, and new members of the Association¹ submitted by the Nominating Committee (Cole, Kidder, Linton, White) were elected.

<i>President</i>	G. G. MacCurdy
<i>First Vice-President</i>	Ralph Linton
<i>Second Vice-President</i>	Carl Guthe
<i>Secretary</i>	J. M. Cooper
<i>Treasurer</i>	E. W. Gifford
<i>Editor</i>	R. H. Lowie
<i>Associate Editors</i>	E. W. Gifford, F. G. Speck
<i>Executive Committee</i>	Ruth F. Benedict, F. W. Hodge, A. V. Kidder

Council

New Members: J. H. Breasted, H. Beyer, K. Chapman, Isabel T. Kelly, J. H. Kellogg, G. D. Williams, F. R. Wulsin, M. Amsden, P. A. Brannon, H. S. Colton, T. Deuel, K. P. Emory, Lucy Freeland, Anne H. Gayton, M. R. Gilmore, H. S. Gladwin, L. L. Hargrave, M. Hellman, O. LaFarge, E. M. Loeb, A. Lesser, W. C. MacLeod, C. G. A. Means, W. A. Ritchie, V. Steffanson, Gene Weltfish, W.

¹ The names of whom will be published in the complete membership list of the Association in our next issue.

L. Warner, L. Schellbach, C. B. Osgood, Hortense Powdermaker, F. E. Clements, Charlotte Gower. (1934).

Members: G. Engerrand, S. J. Guernsey, C. E. Guthe, H. J. Hall, E. S. Handy, C. L. Hay, J. P. Harrington, L. W. Jenkins, A. V. Kidder, T. Michelson, J. B. Stetson, Jr., E. H. Morris, T. W. Todd, F. H. H. Roberts, Jr., J. M. Cooper, W. K. Gregory, H. C. Shetrone. (1934).

A. Kelley, George Williams, Ellen Spinden, M. G. Smith, Fay-Cooper Cole, Frances Densmore, R. Redfield, E. B. Renaud, J. R. Swanton, Ruth O. Sawtell, W. B. Hinsdale, Agnes C. L. Donohugh, W. M. Krogman, W. C. McKern, Zelia Nuttall, Ruth C. MacDuffie, R. L. Olsen, C. M. Barbeau, R. B. Bean, S. B. Collins, B. Cummings, S. Hagar, G. G. Heye, E. A. Hooton, A. B. Lewis, S. K. Lothrop, G. A. Dorsey, S. G. Morley, J. E. Pearce, F. G. Speck, L. Spier, H. J. Spinden, F. Starr, W. D. Wallis, H. N. Wardle, H. Shapiro, H. W. Krieger, O. Ricketson, D. J. Morton. (1933).

C. W. Bishop, Fannie Bandelier, Margaret Ashley, Carl Coon, V. J. Fewkes, E. F. Greenman, F. W. Hodge, Vincent Petruccio, Paul Radin, Helen H. Roberts, M. W. Stirling, J. G. Steward, S. A. Barrett, M. V. Beckwith, R. Benedict, F. Blom, D. Cadzow, C. B. Davenport, E. S. Goldfrank, G. B. Grinnell, E. Gunther, A. I. Halliwell, M. J. Herskovits, A. E. Jenks, N. M. Judd, F. La Flesche, R. Linton, J. H. MacGregor, B. Oettinger, A. C. Parker, G. Reichard, R. J. Terry. (1932).

L. Bloomfield, R. L. Bunzel, B. Cosgrove, T. Adamson, H. Bingham, D. S. Davidson, H. Field, E. W. Gifford, C. H. Hawes, M. Jacobs, D. Jenness, W. Jochelson, R. W. Lothrop, T. F. McIlwraith, G. G. MacCurdy, J. A. Mason, M. Mead, C. B. Moore, W. K. Moorehead, N. C. Nelson, E. C. Parsons, C. Peabody, E. K. Putnam, Mrs. O. Ricketson, E. Sapir, F. H. Saville, M. H. Saville, H. I. Smith, G. Vaillant, A. E. White, H. Webster, L. A. White, C. C. Willoughby. (1931).

Past Presidents (ipso facto members of the Council): F. Boas, W. H. Holmes, R. B. Dixon, F. W. Hodge, A. L. Kroeber, C. Wissler, W. Hough, A. Hrdlicka, M. H. Saville, A. M. Tozzer.

Representative to Social Science Research Council: E. Sapir (April 1, 1931-April 1, 1934).

Representative to National Research Council: F. G. Speck and E. Sapir (July 1, 1931-July 1, 1934).

Representative to Section II, A.A.A.S: E. A. Hooton, A. Hrdlicka.

Representatives to the American Council of Learned Societies: F. Boas (January 1, 1930-December 31, 1933), A. V. Kidder (January 1, 1930-December 31, 1931). (Owing to the fact that neither Professor Boas nor Dr. Kidder were able to attend

the meetings of the Council in January, 1931, Dr. Tozzer and Dr. Sapir were selected as substitutes.)

The following Resolutions were passed:

1

WHEREAS, The American Anthropological Association and affiliated societies have enjoyed the hospitality of the Medical College of Western Reserve University, be it hereby resolved, that the Association instruct its Secretary to tender its sincere appreciation and deep gratitude to the Western Reserve University, to its Medical College, to the officers of the Department of Anatomy, and particularly to Professor T. Wingate Todd for the facilities and entertainment offered.

2

WHEREAS, Several years ago Congress made an appropriation to the Smithsonian Institution, enabling it to assist many organizations in conducting field work, be it resolved, that the American Anthropological Association formally acknowledges the aid thus rendered to anthropological research in North America and strongly recommends a renewal of this fund

3

WHEREAS, The Committee on State Archaeological Surveys of the National Research Council has acted as a clearing-house and advisory body for American archaeology, coordinating the aims and accomplishments of the professional and educating the non-professional archaeologists, be it resolved, that the American Anthropological Association expresses its endorsement of the Committee's activities.

4

WHEREAS, an exposition of all the arts of the Indians now living in the United States is being planned to open in New York in November, 1931, and subsequently in other cities, and whereas said exposition is wholly non-commercial in character, intending to further appreciation of aboriginal arts and to foster continuation of such aesthetic activities among Indians, be it resolved, that the American Anthropological Association heartily endorses this project of the Exposition of Indian Tribal Arts, Inc.

5

WHEREAS, The Vestal Bill, H.R. 12549, now on the calendar of the House of Representatives, purports to clear the way for the entrance of the United States into the International Copyright Union, be it resolved, that the American Anthropological Association endorses the bill, but with the important qualifications laid down in the letter of M. Llewellyn Raney, Director of Libraries and Secretary, Subcommittee on Copyrights and Patents, A.A.A.S.

PROGRAMME

Monday Morning, December 29

1. The Anthropological Work of the National Research Council. F.-C. Cole, University of Chicago.
2. National Research Council Committee on State Archaeological Surveys. C. Guthe, University of Michigan.
3. The Anthropological Work of the Social Science Research Council. E. Sapir, University of Chicago.
4. Fellowships in the N.R.C. and the S.S.R.C. A.M. Tozzer, Harvard University.
5. Institute of Human Relations. C. Wissler, Yale University.
6. The Anthropological Laboratory at Santa Fé. A. V. Kidder, Carnegie Institution.
7. American School of Prehistoric Studies in Europe. G. G. MacCurdy, Yale University.
8. Anthropology at the Chicago World's Fair. F.-C. Cole, University of Chicago.
9. An Ethno-botanical Repository. M. R. Gilmore, University of Michigan.

Monday Afternoon

1. Cooperation in Research. W. K. Moorehead, Phillips Academy, Andover, Massachusetts.
2. The Plumed Serpent Concept in Ohio Archaeology. (Lantern.) H. C. Shetrone, Ohio State Museum, Columbus, Ohio.
3. Petroglyphs of Southeastern Colorado. (Lantern.) E. B. Renaud, University of Denver, Denver, Colorado.
4. Types of Kivas near Navajo Mountain. (Lantern.) Byron Cummings, University of Arizona, Tucson, Arizona.
5. Returns from Recent Researches in Texas Archaeology. (Lantern.) J. E. Pearce, University of Texas, Austin, Texas.
6. The Bezoar in Aboriginal American Culture. J. M. Cooper, Catholic University of America, Washington, D.C.
7. Two Recent Findings from Central Mexico. (Lantern.) B. L. Whorf, Hartford, Connecticut.
8. A Lower Palaeolithic Station near Aoulef Cheurfa in the Sahara Desert. (Lantern.) A. W. Pond, Logan Museum, Beloit, Wisconsin.
9. A Mousterian Quartzite Quarry Site in the Sahara Desert (Lantern.) A.W. Pond, Logan Museum, Beloit, Wisconsin.
10. Notes on the History and Symbolism of the Muskogean and the Probable Relation of these Tribes to the Builders of the Etowah Group of Mounds. (By Title.) C. C. Willoughby, Peabody Museum.

Tuesday Morning, December 30

1. A Synoptic Study of an Unpublished Manuscript Collection of Folk-Tales from the Philippine Islands. D. S. Fansler, Brown University, Providence, Rhode Island.
2. White Spirituals in the Rural South. G. P. Jackson, Vanderbilt University, Nashville, Tennessee.
3. The Unity of New World Negro Culture. M. J. Herskovits, Northwestern University, Evanston, Illinois.
4. Survivals of Indian Culture among Zapoteca-Speaking Mexicans. Elsie C. Parsons, New York City.
5. Cross-Cousin Marriage and Kinship Usages of the Swampy Cree and Saulteaux-Ojibway. A. I. Hallowell, University of Pennsylvania, Philadelphia, Pennsylvania.
6. Parallels in Grandparent-Grandchild Joking. Alexander Lesser, New York City.
7. Origins of Pima Art Style. Gene Weltfish, New York City.
8. Contrast in Motor-Habits of the San Carlos, Mescalero, Jicarilla, and Hopi Basket-Makers. Gene Weltfish, New York City.

Tuesday Afternoon

1. Diffusion of Culture in Central Asia. W. M. McGovern, Northwestern University, Evanston, Illinois.
2. The Problem of the Sweet Potato in Polynesia. R. B. Dixon, Harvard University, Cambridge, Massachusetts.
3. The Process of Invention. Hornell Hart, Bryn Mawr College, Bryn Mawr, Pennsylvania.
4. Mortuary Rites in New Ireland: Their Effect on the Living. Hortense Powdermaker, Institute of Human Relations, Yale University, New Haven, Connecticut.
5. The Pattern of Ceremony. Alexander Lesser, New York City.
6. The Anthropological Significance of the Russian Revolution. L. A. White, University of Michigan, Ann Arbor, Michigan.
7. Linguistic Changes in the Acculturation of the Swedes in Texas. C. M. Rosenquist, University of Texas, Austin, Texas.
8. Pitch Tone and the Saltillo in Modern and Ancient Nahuatl. (By Title.) B. L. Whorf, Hartford, Connecticut.
9. Phallic Symbolism. J. Marker, New York City.

Tuesday Evening

Dinner, followed by addresses of A. V. Kidder, Retiring Vice-President for Section H, A. A. A. S., and Ales Hrdlicka, President of the American Association of Phys-

ical Anthropologists, who spoke on the "Results of the Smithsonian Institution Expedition to Alaska."

H. IRVING HALLOWELL, *Secretary,*
American Anthropological Association

THE ACTIVITIES OF THE COMMITTEE ON STATE ARCHAEOLOGICAL
SURVEYS DURING 1930 (Abstract)

According to the policies of the National Research Council, the Committee on State Archaeological Surveys should concern itself with the promotion of cooperative research and the encouragement of individual effort, and the gathering and distribution of scientific and technical information. In fulfilling these functions during 1930 the Committee published in the *AMERICAN ANTHROPOLOGIST* a summary of the archaeological field work in North America during 1929, and a Guide Leaflet for Amateur Archaeologists as No. 93 of the Reprint and Circular Series of the National Research Council. In July it issued a twelve page mimeographed statement outlining the plans for field work during 1930 of the several organizations working in North American archaeology.

Through circular letters issued from time to time to all or a selected part of the eighty-three organizations with which the Committee corresponds, assistance is rendered to a number of projects requiring for their success the cooperation of several groups. These circulars dealt with the Ethnobotanical Laboratory in the Museum of Anthropology at the University of Michigan, the Pictorial Survey of the cultures of the Upper Mississippi valley at the University of Chicago, a compilation of data on a proposed aerial survey of the archaeological sites in the Central States, the cooperative fund administered by the Smithsonian Institution, and a proposed conference of archaeologists, geologists, and commercial excavators in Chicago.

Through the kindness of Mr. Fisher of the University of New Mexico and the School of American Research, the Committee was able to distribute a small pamphlet describing the Archaeological Survey of New Mexico to a limited mailing list.

The Committee office maintains and is constantly revising a directory of professional anthropologists, persons interested in anthropology, and organizations working in anthropology. Through its correspondence the Committee is of service to our science by rendering concrete assistance to individuals and organizations, by bringing together investigators who have common interests, and by giving encouragement when it is most needed. Each year the Committee holds an annual meeting in the spring, and during the summer the chairman devotes several weeks to visiting museums and organizations interested in North American archaeology.

The success of the Committee work depends entirely upon the willingness of the many field men and organization officials to cooperate with it. The steadily growing volume of work done by the Committee indicates its increasing usefulness in North American archaeology.

CARL E. GUTH

REPORT TO CONSTITUENT SOCIETIES ON WORK OF THE SOCIAL SCIENCE
RESEARCH COUNCIL DURING THE PAST YEAR

The work of the Social Science Research Council has progressed steadily during the past year. A number of outstanding aspects of the work of the Council are set down briefly below.

Relations With Constituent Societies

The Council has stressed its concern with the development of a type of research involving questions that cut across the lines of the single disciplines. This has represented a desire to assist at a point in the research field where the difficulties confronting the individual investigator are obviously great. For the cross-discipline problem frequently calls for a liberality of financing and a degree of planning and patience in the gathering of data of unusual sorts beyond the reach of the lone investigator.

At the same time, the Council has never intended any such preoccupation as it may have shown with these cross-discipline problems to involve neglect for the concerns of the great body of individual investigators working within the range of their respective disciplines.

In line with this general point of view, the following action was adopted by the council in the summer of 1930:—

The Social Science Research Council is concerned with the promotion of research over the entire field of the social sciences. The Council's thinking thus far has been largely in terms of social problems which cannot be adequately analyzed through the contributions of any single discipline. It is probable that the Council's interest will continue to run strongly in the direction of these inter-discipline inquiries. At the same time, the Council is quite aware of the fundamental place which the several recognized disciplines occupy in the upbuilding of more effective scientific research in the social field. The Council consequently acknowledges its definite responsibility for the promotion of research in the several constituent disciplines. In giving continued consideration to the needs of research in the individual disciplines, the Council would welcome the assistance of the constituent societies

Growing out of this action, plans are under way further to complement this plan of the Council's through specific co-operation with the several constituent societies.

Council Program

In line with the Council's policy of developing constantly wider contacts with research groups in the social science field, members-at-large representing Geography and Education have been added during the past year. A member-at-large from the field of psychiatry was appointed for a second term, and representatives of public health and law also hold memberships-at-large.

In order to give further focus to its work, the Council has moved steadily during the past year in the direction of concentrating a part of its energy on the development of research in certain specified fields. A section on research in international problems is being set up at the present time, and the Council is glad to announce that

Professor James T. Shotwell of Columbia University has joined its staff to direct this program. The various committees that have operated in the past in the economic field are being concentrated under a single section on business, finance, and industry under the direction of Dr. Meredith B. Givens. Professor Wesley C. Mitchell has been given a small grant for his use in exploring the possibilities for a third section devoted to the problem of consumption and leisure, the spending of time and money. Other research areas are actively under consideration.

Regional Committees

Last year the Council set up regional committees in the South and on the Pacific Coast, in order to maintain more effective contact with the research interests of social scientists in these areas. It is obvious that no matter where the office of a national council is located, it will be unfortunately remote from certain other parts of the country. Every effort has been made during the past year to develop the work of these regional committees. The latter are not in any sense confined to regional problems but are encouraged to transmit to the Council or to develop independently problems of all kinds of concern to the research workers in their areas. The Pacific Coast Committee has operated actively during the past year as has the Southern Regional Committee. In order to stimulate further the research activity in the area of the latter, the Council has made available a special sum for grants-in-aid to southern social scientists, to be administered by the Southern Regional Committee. This move was taken because of the general lack of research funds in the bulk of the southern institutions and the prevalence of heavy teaching schedules. It is hoped that if the funds can be made available for several years, the research morale in many institutions can be strengthened.

Research in Colleges

There is an impression in some quarters that a fundamental cleavage exists between the interests of research and the interests of good teaching, particularly on the college level. There is no denying that, under the guise of devotion to research, serious abuses of the teacher's responsibility have in some cases occurred. The Social Science Research Council maintains, however, that even on the college level this conflict between teaching and research is more apparent than real; that, in fact, the best teaching tends to come from minds engaged in stimulating first-hand contact with significant research problems. The Council has accordingly passed the following resolution:

The Social Science Research Council is thoroughly in accord with the view that the primary functions of the American college relate to teaching rather than to research, but the Council is deeply concerned none the less with the policies under which American collegiate education is being conducted.

Improvement of college teaching in the social sciences bears directly upon the Council's interests on at least two points. In the first place, more general understanding among college graduates of the complexities of social life will promote the development of the sympathetic

and enlightened public opinion which constitutes an important conditioning factor in many lines of social research. In the second place, better undergraduate instruction in the social sciences will contribute in important ways to the development of the larger body of competent research personnel upon which effective future prosecution of social inquiry so largely depends.

It is because the Council is so vitally interested in the quality of undergraduate instruction in the social sciences that it cannot be indifferent to the wise and deliberate cultivation of research activities among the members of the collegiate teaching faculties. From some point of view, teaching and research are conflicting objectives; certainly either may become so engrossing an interest as to result in the manifest neglect of the other. But from a different point of view, teaching is unlikely to remain vital and sound over the years unless the teacher not only keeps abreast of his subject but maintains a modest program of research or creative work. Such a program need not issue in imposing monographs nor in works of outstanding authority; but tangible evidence of intellectual growth is indispensable. Research opportunities exist close at hand in every community. Encouragement of research within appropriate limits is an essential condition for the maintenance of collegiate teaching efficiency.

Local University Research Councils

The number of local university research councils is growing rapidly. A year ago the Council held a conference of representatives of these councils in connection with its annual summer conference. Since that time it has maintained constant contact with each of these councils, circulating minutes, reports, and other material of interest to the various secretaries. It is planned to call together again representatives of this widening group of active local institutions for a second conference under the Council's auspices.

Fellowships

During the year, the Council's three fellowship programs have continued—thirty fellowships being awarded in the senior series of post-doctoral fellowships, twenty-four fellowships under the five-year program of fellowships in agricultural economics and rural sociology, aimed at developing more effective research personnel through whom to utilize available government funds in the field of agriculture, and twenty-six fellowships in the newly constituted series of fellowships for southern graduate students.

A six-year summary of the fellowships granted in the post-doctoral series, distributed by discipline, shows the following totals: Anthropology, 7; Economics, 33; History, 31; Political Science, 22; Sociology, 17; Psychology, 13; Statistics, 1; Law, 2; Education, 1; Geography, 2; Problems of Scientific Methodology, 4. Every effort is made by the Council to maintain equal opportunity for applicants from all of the fields represented by its constituent societies. In the last analysis, however, the Council must be governed by the availability of first rate applicants who either come to it or whom it is able to discover. Hence the disparity in the numbers granted to the different disciplines. Experience has proved that it is unwise formally to allocate a pro-rata share of fellowships to each discipline. Each individual application is considered in detail on its own merits in competition with the entire field.

Grants-In-Aid

During the past year, thirty-five grants-in-aid were awarded to mature scholars.

A summary of grants during the four years of operation of these awards shows the following: Anthropology, 4; Economics, 14, History, 38; Political Science, 13; Sociology, 8; Psychology, 9; Statistics, 2; Law, 1; Geography, 4. As regards the disparity here represented among the various disciplines, the same condition holds as was noted immediately above as regards fellowships.

Committee Activity

Among the most active of the Council's committees during the past year, the following may be noted:

Committee on Public Administration.—Under the chairmanship of Professor Leonard White in 1929, and since September of this year under the direction of Dr. Luther Gulick, this committee has carried on a survey of current research in the field of public administration under Professor John M. Gaus, of the University of Wisconsin. It has also developed local library centers for the collection of materials of record touching public administration in the several states. Other activities that have concerned the Committee have been co-operation with the American Council on Education in a joint committee to study problems of public administration in the Education field; study of the problem of training for public service, and assistance in the development of governmental research exchange.

Committee on the Family.—This Committee has presented an extended program of research in problems touching the family, and this program is now before the Council for action.

Committee on Material for Research.—This Committee, composed jointly of representatives of the Social Science Research Council and of the American Council of Learned Societies, has had an investigator at work studying the present situation as regards the types of materials collected by the various state historical societies and other institutions preserving materials of record throughout the country. It has been instrumental in at least one case in securing a grant for a state university to collect records within its boundaries. It has also been in touch with each of the disciplines involved in the two councils in an effort to develop further specifications as to record matter not at present being adequately collected. The field of this Committee is large, and it bids fair amply to justify its establishment.

Committee on Social and Economic Research in Agriculture—This committee has pushed forward actively its series of monographs on scope and methods of research in agriculture. There are to be approximately twenty-two studies in this series, all under the general editorship of Professor John D. Black of Harvard University. A sub-committee was set up under the Committee on Agriculture to study the kind and extent of mathematical training for social investigators, another sub-committee has developed an extensive study of rural social work, while still a third committee has developed a plan for which funds have been secured for an extensive program of graduate training in agriculture in Washington, D. C.

Committee on Scientific Publication.—This Committee has devoted its attention primarily to the problem of monographic publication and the publication of doctoral dissertations. An effort is being made in the present year to work closely with such committees on publication as may have been set up by the various constituent societies.

Committee on Scientific Personnel.—This Committee has been developing plans for the following two types of studies: (1) an analysis of the vocational choices of students taking undergraduate honors in social science in comparison with other groups and in relation to personality and intelligence ratings; (2) an analysis of first-year graduate school enrollments with respect to undergraduate origins and scholastic records of graduate students. It is planned to have these investigations carried on simultaneously in a limited number of representative colleges and graduate schools.

Committee on Business Research.—Plans for long time studies of four major industries to be carried on in strategically located university business schools have been completed during the year, and funds are being sought at the present time for these studies.

Social Science Committee for Chicago World Fair

The Council has appointed a committee to have charge of the development of the social science exhibits in connection with the World's Fair in Chicago in 1933.

President's Committee on Recent Social Trends

The Council is serving as the fiscal agent handling the \$500,000 being dispersed in connection with the President's Research Committee on Social Trends.

Conferences

Among the conferences that have been held during the year have been a joint conference with the American Psychiatric Association on Research in Problems of Personality, the conference on Cultural Areas with the Divisions of Anthropology and Psychology of the National Research Council, conferences on legal research, international research, economic research, and research into the relation of culture and personality—all of the last four in connection with the annual Hanover Conference—and, in addition to the above, various informal conferences on unemployment, public utilities, and other problems.

Case Book

The case book on *Methods in the Social Sciences*, developed under a committee of the Council, was published in January by the University of Chicago Press. The Council arranged to have the volume published at a price within the reach of students.

Officers of the Council

During the year, Professor Arthur M. Schlesinger, of Harvard University, was elected Chairman of the Council, succeeding Professor Wesley C. Mitchell. Professor William F. Ogburn became Vice-Chairman, Dean Henry M. Bates, Secretary, and Professor Wesley C. Mitchell, Treasurer.

AMERICAN ETHNOLOGICAL SOCIETY

During the past year meetings of the American Ethnological Society have been held as usual at the American Museum of Natural History on the last Monday evening of each month, in conjunction with the Section of Anthropology and Psychology of the New York Academy of Sciences. The meetings have been as follows.

February 24.—Pueblo Family Life, by Dr. Ruth L. Bunzel.

March 24.—(Motion picture) The Berber Tribes of North Africa, made by Mr. John Haeseler.

April 28.—Twenty Years in New Guinea, by Mr. E. W. P. Chinnery.

October 27.—Observations on European Archaeology, by Dr. E. C. Nelson.

November.—Report on the Twenty-fourth International Congress of Americanists, by Dr. Gladys Reichard.

November 24.—War Dances of Europe (Lantern slides and motion pictures), by Professor Franisek Pospisil.

January 26.—The Indians of Guatemala, Past and Present (Lantern slides and motion pictures), by Gregory Mason.

The membership of the Society is made up of Life Members, who pay a fee of \$100, of annual Members at a fee of \$10, and of Fellows at a fee of \$6.00. All those belonging to the Society are thereby members of the American Anthropological Association, and of the New York Academy of Sciences. They receive the *Ethnological Society Memoirs*, the *American Anthropologist*, the *Memoirs of the American Anthropological Association*, and the weekly notification of meetings of the New York Academy of Sciences.

The funds of the Society are devoted to the publication of the *Memoirs*, a series of texts of myth and ritual of the American Indians. At the beginning of the fiscal year, owing to the publication during that year of three volumes of the *Memoirs* (vol. 8, parts 1 and 2, Keresan Texts by Franz Boas, and vol. 12, Menomini Texts by Leonard Bloomfield), the treasurer of the Society reported an outstanding loan from the Corn Exchange Bank for \$1,200, and a debt of \$446 of the Society to its own Permanent Fund. In order to reduce the amount of these loans, the American Anthropological Association during the current year loaned the Society \$550. At the present time this debt to the American Anthropological Association has been repaid, and the debt to the Bank has been cancelled. There is also a sufficient balance to return the amount borrowed from our own Permanent Fund, and the treasurer has been instructed to do this.

This great improvement in the financial status of the Society has been accomplished through several lines of endeavor. Fellows of the Society were urged to change their annual fee to the \$10 dues paid by Members, and about half of the total membership of the Society responded in this way. An appeal was also sent out to the Life Members of the Society, and over \$600 was received as gifts to the Publication Fund. The urgency of a sufficient endowment for publication was also laid before an agent to solicit funds on a commission basis, but on account of the depression only \$400 for the Publication Fund and the \$100 dues of a Life Member have been received from this source. Dr. Berthold Laufer generously interested himself in raising funds to insure the continuation of the publication of the *Memoirs* and he has raised \$650, which makes possible the immediate publication of a new volume. The Society owes a great debt of gratitude to Dr. Laufer. The council has voted to issue Dr. Gunter Wagner's Yuchi Texts as the next memoir of the Society.

There have been a number of changes in the list of members during the year: ten resigned, and ten have been added to the list, one half of these latter being annual Members, and one half annual Fellows. Two new Life Members have also been added, Mr. John B. Stetson and Mr. John H. Fry. The total membership is now 146, of whom 64 are Fellows, 67 are Members, and 15 are Life Members.

The officers of the Society for 1930 were re-elected for the year 1931:

President: Clark Wissler, American Museum of Natural History, New York City.

First Vice-president: F. W. Hodge, Museum of the American Indian, Heye Foundation, New York City.

Second Vice-president: Elsie Clews Parsons, Harrison, New York.

Secretary-Treasurer: Ruth Benedict, Columbia University, New York City.

Editor: Franz Boas, Columbia University, New York City.

Board of Directors: Clarence L. Hay, Bruno Oettinger, Gladys A. Reichard.

TREASURER'S REPORT

(February 1, 1930 to January 31, 1931)

CURRENT FUND

Receipts

Balance in Current Fund, Feb. 1, 1930.	\$ 636.31
Sales through Stechert	\$ 85.38
Interest on Mortgage Bonds	165.00
Dues, Fellows, 1928	12.00
Dues, Fellows, 1929	68.00
Dues, Members, 1929	10.00
Dues, Central Section	4.00
Dues, New Life Members	200.00
Dues, Fellows, 1930 (64)	381.00
Dues, Members, 1930 (67)	670.00
Loan from A. A. A.	550.00

Gifts to Publication Fund	1,682.00	
Through efforts of Dr. Berthold		
Laufer	\$650.00	
From Members and Life Members .	632.00	
From publicity drive	400.00	
		3,827.38
		<hr/>
		\$4,463.69

Expenditures

Dues to American Anthropological Association. \$	710.00	
Exchange on checks .....	.65	
Loan repaid to Corn Exchange Bank....	1,200.00	
Interest on loan from Corn Exchange Bank ..	20.30	
Loan repaid to American Anthropological Assn ..	550.00	
<i>Memoir 12</i> , mailing, etc.....	45.27	
Payment to Agent for funds collected	175.00	
Directory of N. Y. Academy of Sciences, proportionate cost of new	37.60	
Postage for secretary-treasurer	12.00	
Stationery.	33.49	
Multigraphing	3.25	
		<hr/>
		\$2,787.56
Balance in Corn Exchange Bank, Feb. 1, 1931	1,676.13	
		<hr/>
		\$4,463.69

STATEMENT OF ASSETS AND LIABILITIES

Permanent Fund

<i>Assets</i>		<i>Liabilities</i>
3 New York Mortgage Bond Co. Bonds (par value)	\$3,000.00	<hr/>
Savings Account (Manhattan Savings Inst.) .	40.81	
Debit against Current Fund	446.00	
	<hr/>	
	3,486.81	\$0,000.00
Net Assets Permanent Fund.. . . .		3,486.81

Respectfully submitted
 RUTH BENEDICT,
Secretary-Treasurer

Audited and found correct.

HARRY L. SCHAPIRO
 GEORGE VAILLANT

ANTHROPOLOGICAL SOCIETY OF WASHINGTON

The Anthropological Society of Washington at its annual meeting held on January 20, 1931, elected the following officers for the ensuing year.

President: John M. Cooper, Catholic University of America.

Vice-President: Matthew W. Stirling, Bureau of American Ethnology.

Secretary: Frank H. H. Roberts Jr., Bureau of American Ethnology.

Treasurer: Henry B. Collins Jr., U. S. National Museum.

Members of the Board of Managers: Daniel Folkmar, John P. Harrington, J. N. B. Hewitt, H. W. Krieger, George S. Duncan.

The following is a report of the membership and activities of the Anthropological Society of Washington since the last annual meeting, held January 21, 1930.

Membership:

Life members	5
Active members	57
Associate members	9
Honorary members	27
Corresponding members	22
	<hr/>
Total	120
Deceased during year.	5
Resigned	3
New active members	2
New associate members	3

During the year the Society sponsored a special series of evening lectures. The subjects dealt with the evolution and cultural history of mankind. The topics and speakers were:

January 7, 1930. "The Coming of Man," by Dr. Fay-Cooper Cole, Professor of Anthropology at the University of Chicago.

January 21, 1930. "The Differentiation of Man Into Races and His Spread Over the Earth," by Dr. Ales Hrdlicka, Curator Division of Physical Anthropology, U. S. National Museum.

February 4, 1930. "The Culture Area," by Dr. Clark Wissler, Curator of Anthropology, American Museum of Natural History; Professor of Anthropology at Yale University.

February 18, 1930. "The Civilizations of Middle America," by Dr. Herbert J. Spinden, Curator Department of Ethnology, Brooklyn Institute of Arts and Sciences.

March 4, 1930. "Prehistoric Pueblos and Cliff Dwellings of the Southwest," by Mr. Neil M. Judd, Curator of American Archaeology, U. S. National Museum.

Papers presented before regular meetings of the Society were as follows:

March 18, 1930. "Some New Facts on the Creek Social Organization," by Dr. John R. Swanton, Ethnologist Bureau of American Ethnology.

April 15, 1930. "First Contacts of White Men, Indians, and Negroes on Española," by Dr. C. L. G. Anderson, retiring president of the Society.

October 21, 1930. "Current Anthropological Work in the United States," by Mr. M. W. Stirling, Chief of Bureau of American Ethnology.

November 18, 1930. "Some Cheyenne and Arapaho Notes," by Dr. Truman Michelson, Ethnologist Bureau of American Ethnology.

December 16, 1930. "Pottery Making in the Province of Coclé, Panama," by Mr. Henry B. Roberts, Carnegie Institution of Washington and Peabody Museum at Cambridge, Massachusetts.

December 19, 1930. "Scotch Sword Dances and Other European War Dances," by Professor Frantisek Pospisil, Director of the Section of Ethnography of the Regional Museum of Moravia. (This was a special meeting of the Society.)

All of the meetings, with the exception of the five special lectures and that given by Professor Pospisil, were held in Room 42-43 of the New National Museum. The other meetings were held in the auditorium of that building.

The Society was unfortunate in the loss by death of five of its members. Dr. J. Walter Fewkes, a past president, died on May 31, 1930. Mr. Henry W. Henshaw, also a past president, died August 1, 1930. Dr. Louis Mackall died July 27, 1930. Mr. James M. Spear died October 24, 1930. Mr. F. M. Tryon died in December 1930.

Respectfully submitted,

FRANK H. H. ROBERTS JR.,

Secretary.

ANTHROPOLOGICAL NOTES AND NEWS

ADMINISTRATION DES ANTHROPOS

The editors of *Anthropos* announce the publication of volume 1 of Professor Martin Gusinde's work "Die Feuerland-Indianer." This volume will be devoted to the Selk'nam. The subscription price is set at \$36 (150 M). There will be 52 plates and 3 maps.

ALABAMA MUSEUM OF NATURAL HISTORY

The Alabama Museum of Natural History has just completed its second field season at Moundville, where the Museum has purchased 171 acres of land, carrying the wonderful aboriginal mounds at that place, and has been most successful in their quest for information regarding these ancient people. Since January 15, 1930, they have spent about seventy days at Moundville, divided into two field seasons, and have unearthed some 1,200 skeletons, and have taken out 450 earthenware vessels, a large number of objects in stone, including discs, discoidals, ceremonial axes, pendants, and the like, some things in copper, a large number of bone implements, and an enormous quantity of objects in shell, principally beads and pendants.

It will be recalled that Clarence Moore, of the Academy of Natural Sciences at Philadelphia, spent two field seasons at this place in 1905-06, and that he asserted at the end of his work that in his opinion everything worth extended excavations had been taken. The Museum is highly gratified that it has been able to secure a much richer collection than Clarence Moore got, and it is believed that many wonderful objects still remain buried there.

The tract of land owned by the Museum will be preserved as nearly as possible as the mound builders left it, while all objects secured there will be found in the Museum, located at Tuscaloosa, Alabama.

BUREAU OF AMERICAN ETHNOLOGY

During the spring of 1930 Mr. M. W. Stirling, chief of the Bureau of American Ethnology, made archaeological investigations on the southwest coast of Florida. Through the kindness of the late Mr. Lee Parish, Mr. Stirling was enabled to accompany him on his yacht *Esperanza* through the intricate channels of the Ten Thousand islands, where a number of old village sites were located and excavations conducted on a typical southern Calusa mound on Horr's islands.

After completing the work in the Ten Thousand islands a site was selected near Safety harbour at the head of Old Tampa bay. From the evidence gathered, as a result of excavating the village site and large burial mound, it seems to be probable that this village was occupied at the time De Soto visited Tampa bay and continued to be inhabited for a considerable period subsequently. Because of the fact that it bridges the period separating the historic from the prehistoric, it is of particular interest to the archaeologist.

In July of the same year Mr. Stirling made an archaeological reconnoissance in Texas and Nevada. Several caves containing pictographs were examined in the vicinity of Limpia canyon north of Marfa, Texas; on the Knight ranch southwest of Valentine very interesting caves were examined and selected as sites for excavation in the near future. Caves also were examined in the territory lying between the Ruby and Jarbridge mountains, Nevada, where future work has been planned.

During the field season of 1930 Dr. F. H. H. Roberts, Jr., archaeologist, unearthed one of the most interesting groups of small house remains which thus far have come to light in western New Mexico. That the ruins escaped notice for so long a time may be attributed to their inconspicuous nature. They are located seventeen miles northeast of the present pueblo of Zuñi on the Zuñi reservation. Two houses, one containing sixty-four rooms and the other twenty rooms, were completely excavated. One of the most striking features of the group was observed in the presence of two great kivas of the Chaco canyon type. The largest of these kivas has an average diameter of seventy-eight feet, which places it first on the list of great kivas thus far recorded from the Southwest.

At the close of the season Dr. Roberts spent a week conducting a reconnoissance on the Zuñi reservation and the adjacent territory in northern Arizona for the purpose of locating sites of the Pueblo I period in the region. As a result of these explorations several promising village remains were discovered.

Dr. John R. Swanton, ethnologist, visited during last summer tribal remnants in Louisiana, including Chitimacha, Tunica, and Koasati, and obtained a considerable amount of linguistic material from the two last mentioned tribes. He discovered that the Ofo language is entirely extinct, the last speaker of the town having died fifteen years ago. There appears to be no doubt that the same fate has overtaken Atakapa.

Field work attempting to rescue what can still be obtained from the wreck of former Indian custom and language at San Juan Bautista, in central California, not far south of San Francisco near the coast, was accomplished during 1929-1930 by Mr. John P. Harrington, ethnologist. This information was obtained from Dona Ascension Solorsana, last speaker of the San Juan language, who though very ill when Mr. Harrington arrived at San Juan Bautista, survived long enough to enable Mr. Harrington to obtain practically all that she knew about her people. The information is of the greatest importance for undertaking the ethnology of a section of California from which little has been recorded, for the history of San Juan Mission, for putting on record the San Juan language and the Spanish language as spoken by San Juan Indians.

CARNEGIE INSTITUTION OF WASHINGTON

The excavations of Carnegie Institution of Washington at Chichen Itza will be continued, as in former years, under the direction of Dr. S. G. Morley, who will be assisted by Mr. Karl Ruppert, Mr. H. E. D. Pollock, and Mr. Jack Bolles.

Further investigation of the Maya Old Empire site at Uaxactun in the Depart-

ment of Peten, Guatemala, will be carried on by Mr. Ledyard Smith, assisted by Munroe Amsden. A group of biologists from the University of Michigan will accompany the archaeological group and undertake a survey of the flora and fauna of the region. Dr. Cooke of the U. S. Geological Survey, whose services have been loaned to the Institution by the Survey, will also visit the Peten.

LOS ANGELES MUSEUM

The Van Bergen-Los Angeles Museum field party recently laid bare a third cremation pit burial area on the same site discovered and leased by the party last spring.

Some sixty burials were recovered in the latest find and the work of sorting the pottery fragments, matching and patching the sherds is going steadily forward. Dozens of reconstructed vessels are being assembled in the laboratory under the watchful eyes of Dr. Van Bergen, who is doing a great deal of active personal work in the assembling of the material. The forms, sizes, and types of decoration on the vessels are astounding. As yet, there does not appear to be any distinct line of cleavage in the pottery horizon, only an indication of a long period of occupation with no definite evidences of any cultural intrusions which might normally be expected to change the type of pottery or influence house types and burials.

The results of the Van Bergen-Los Angeles Museum field party's summer work in dry caves in southern Utah in the vicinity of Navajo mountain are now on exhibition in the Los Angeles Museum Field Room. Some fine examples of shafted atlatl dart points are to be seen in the six specimens of foreshafts which were recovered in pristine condition from one cave. The field crew was under the direction of Mr. Irwin Hayden.

A scale model of a Chumash coastal village prepared by Mr. J. L. Roop, sculptor attached to the Los Angeles Museum staff, under the direction of Arthur Woodward, curator of history, is now on exhibition in the Museum. This model depicts the house types, costume, industries, etc., according to eye witnesses' accounts and the archaeological findings of Woodward and Van Bergen in their excavations on the site of Muwu, the old Chumash village situated near Point Magu, Ventura county, California.

The model is first of a series intended to depict the high lights of California's history. All will be made to the same scale and be as faithful in detail as it is humanly possible to make them.

Mr. Ben Wetherill, experienced guide and Navaho student, son of Mr. John Wetherill, the well known pioneer in Basket Maker excavations, has been engaged by Dr. Charles Van Bergen to assist in the work of the field party now camped in the Gila valley.

The University of Southern California classes in anthropology are utilizing more and more the facilities offered in the laboratory and the exhibition halls of the Los Angeles Museum. Arthur Woodward, curator of history, has given a number of lectures on the culture areas of North America, using the material in the cases to demonstrate differences and diffusions.

A collection of type pottery specimens from Casas Grandes, Chihuahua, Mimbres, Tularosa, Mesa Verde, etc., as well as a small collection of Plains beadwork, were recently presented to the Museum through the generosity of the Gila Pueblo.

In addition to the North and South American collections pertaining to the ethnology and archaeology of those continents, the Museum now has a hall devoted to the ethnology and archaeology of Africa, Hawaii, New Guinea, the Philippines, etc., as well as a separate hall of archaeological material pertaining to Egypt.

FIELD MUSEUM OF NATURAL HISTORY

Mr. Henry Field, Assistant Curator of Physical Anthropology at Field Museum of Natural History, returned early in January from a trip to Europe, where he spent seven months collecting exhibition material for the Hall of Prehistoric Man and for the Hall of Races of the World, which are planned for completion in 1933. A large collection of objects of art and implements from the Palaeolithic, Neolithic, and Mesolithic periods, as well as specimens from the Bronze and Iron ages were acquired in France, England, Germany, and Czecho-Slovakia. This large addition to the existing prehistoric collections places Field Museum in the front rank with museums containing the arts and crafts of prehistoric man.

In addition to the specimens which will form the exhibition material and the study collections, several thousand publications were also purchased so that the library will contain the more important European books dealing with prehistory and physical anthropology.

METROPOLITAN MUSEUM OF ART (Department of Egyptian Art)

The Egyptian expedition of the Metropolitan Museum of Art, under the direction of Mr. Herbert E. Winlock, curator of the Department, left New York for Egypt early in November, 1930. Excavation was to be resumed in the Theban necropolis in tombs of the Middle Kingdom and Empire periods. The expedition is to return this spring.

During last summer the work of the Egyptian Department of the Museum consisted largely in making a study of objects discovered in the Theban necropolis by the Museum's expedition in the season 1928-1929 in the tomb of Queen Meryet-Amūn, wife of King Amen-hoppe II, middle of the eighteenth dynasty, about 1450 B.C. The tomb had been methodically plundered by ancient thieves and even the mummy had been unbandaged and funereal objects of value within the windings and on the body itself had been taken. But some things, useless to the robbers, such as pottery and baskets, were left. In the same tomb there was a second burial, that of the Princess Entiwy, daughter of King Pay-nūdjem of the twenty-first dynasty, about 1050 B.C. The mummy of this princess had also been pillaged, but not so thoroughly as that of Queen Meryet-Amūn. Among her belongings were an abridgment of the "Book of Him who is in the Underworld," found on the mummy itself, and a fine scroll of papyrus containing ten chapters of the "Book of the Dead." The latter was tightly rolled within a wooden Osiris figure of the deceased.

MUSEUM OF THE AMERICAN INDIAN

Dr. Bruno Oetteking spent the entire summer of 1930 in Germany. He visited a number of institutions in various parts of the country, undertook some research work in Munich University, and attended the meeting of the German Physical Anthropological Association at Mayence in August, and the 24th International Americanists Congress at Hamburg in September. At the Mayence meeting he read a paper entitled, "Human Prognathy, its Nature and Correlation"; at the Hamburg meeting he read a paper on "Morphology and Human Antiquity in America."

NATIONAL MUSEUM OF CANADA

(Division of Anthropology)

Dr. J. C. B. Grant continued his investigations of the physical characteristics of the Indian tribes of Canada. Last summer he measured a large number of Cree Indians and breeds in the region around Lesser Slave lake.

Professor I. A. Lopatin made an ethnological study of the Kitimat Indians of Douglas Channel, B. C., during the summer months, and Mr. J. T. MacPherson made a similar study of the Indians around Lake Abitibi on the Quebec-Ontario border.

Mr. Harlan I. Smith reorganized the Museum at Banff, established by the National Parks Branch of the Dominion Government. He also took motion pictures of the Stoney Indians in the neighborhood and of the animal life in the Banff National Park.

Mr. W. J. Wintemberg conducted explorations in eastern Canada. He made an archaeological reconnaissance of the Magdalen islands, gulf of St. Lawrence, but found very few evidences of Indian occupation. A pre-European Micmac site in eastern New Brunswick was excavated and some interesting material, including considerable pottery, was secured. Excavations of a pre-European Neutral-Iroquoian site in southwestern Ontario yielded a large quantity of material consisting of pottery, pipes, bone artifacts, arrowpoints, etc. The culture of the site was found to be in the middle of transitional stage of development.

NORTHWESTERN UNIVERSITY

(Department of Anthropology)

Dr. and Mrs. Melville J. Herskovits left for West Africa, January, 1931. They are to be gone until about October. The field trip is being financed through Northwestern and Columbia Universities, and its purpose is both to study the natives of the coastal region of Dahomey and also to find out in Nigeria, Dahomey, and the Gold Coast whether or not there is cultural behavior to be seen which will give further leads as to the origins of New World Negroes.

PHILLIPS ACADEMY

(Department of American Archaeology)

Early in April, 1930, with the coöperation of several institutions and many individuals, an archaeological survey was carried on throughout the Merrimack valley for over five months. Many sites were mapped, and a large force enabled us to excavate extensively.

It was discovered that the Red Paint People Culture of central Maine had penetrated westward to the Lake Winnepesaukee region.

The director continued his studies relating to the distribution of stone cutting tools and his tables have now reached a total of 37,000.

The report on the archaeology of the Arkansas valley was issued about the 1st of February. It deals with the origin and development of the Pueblo-Cliff culture. The conclusions may not be entirely accepted but are based on field evidence.

After consultation with a number of archaeologists, the director decided to abandon further field operations and concentrate on a study of type distributions in the United States during the next six years.

THE SAN DIEGO MUSEUM

The field party of the San Diego Museum has returned from its archaeological survey work in the Mohave desert and the lower basin of the Colorado river. Malcolm J. Rogers, archaeologist in charge, reports important findings. The discovery of the habitations of the Pueblo turquoise miners who worked the local mines, and the excavation of an early Mohave cremation cemetery, were two of the principal accomplishments of the season. Material evidence of Mohave trade relations with the Pacific Coast and the Pueblo area was obtained in quantities. These people seem to have been the Phoenicians of the Southwest.

THE SOUTHWEST MUSEUM

The joint expedition to Gypsum cave near Las Vegas, Nevada, was resumed November 1, the participants being the Southwest Museum of Los Angeles and the California Institute of Technology of Pasadena, the former assisted by a grant from the Carnegie Institution of Washington. The expedition is under the direction of Curator M. R. Harrington of the Southwest Museum.

This is the dry cave where numerous bones of Pleistocene animals were found last spring so associated with human artifacts as to suggest the presence of man in this district before the last of a number of species now extinct had disappeared.

The earliest traces of man consisted of flint dart-points, fragments of painted dart-shafts, torches of wood and cane, and charcoal. The extinct fauna apparently associated were: the ground-sloth *Nothotherium*, represented by bones of a number of individuals, abundant dung, well preserved hair varying in color from yellowish gray to reddish, claws with horny sheaths still intact, and a few pieces of skin; three species of camels all represented by bones, including one small slender-limbed variety which

appears to be new; and two species of indigenous horse, a larger and a smaller, represented by bones and hoofs.

At present writing the second expedition has not added greatly to this list, the most important find, from the archaeological standpoint, being an oval flint knife, its cutting edge chipped from one side only, which was found in the same strata with sloth dung.

It was also learned that the occupation of the cave by the sloth was interrupted by an earthquake which brought down great masses of rock from the ceiling; but that the sloths returned to the cave afterwards; and that the traces of man are associated mainly, but not entirely, with this last occupation by the sloths.

In more recent times the cave was visited by Basket Makers, Pueblos ranging from period I to III, and modern Indians, probably southern Paiute.

The identity of the earlier visitors cannot be determined but it is certain that they used atlatl-darts of cruder construction than those of the Basket Makers, but sometimes highly decorated with painted designs, and dart-points of lozenge form quite unlike those of the Basket Maker.

At the Southwest Museum some of the finest specimens of the remarkable Dr. Charles F. Lummis collection of Navaho blankets have been placed on display for the first time, and an exhibit illustrating the agricultural and botanical contributions of the American Indian to modern civilization has been installed.

TULANE UNIVERSITY

(Department of Middle American Research)

The Department of Middle American Research of Tulane University undertook a survey of the Uxmal ruins with special attention to the Nunnery, in the early part of 1930. The staff consisted of engineers, architects, sculptors, a photographer, and an archaeologist, who spent nearly four months in the east building of the Nunnery. The results of the expedition were a triangulated map of the country around Uxmal, tying up with towns on the Muna-Tikul railroad and several ruined cities in the vicinity, a general map of the ruins, a contour map, with one foot contour intervals of the Nunnery and the House of the Magician, and a five foot contour interval map of the House of the Governor and adjacent buildings; over sixty measured architectural drawings of the Nunnery group, several hundred plaster casts, 1500 feet of moving picture, and 400 photographs. The expedition was fortunate in locating 23 groups of buildings which have not been described before and 19 hieroglyphic monuments, which by their style must be ascribed to a period around A. D. 500. Many paintings were found on capstones and walls.

Before returning to New Orleans, a short trip was made to ruins in the vicinity, and the main results of this trip were the finding of a ball-court and eight stelae at Sayil, and two inscribed door-jambs at Mulush-Sekal, and the mapping of a large two-story building some distance from the center of Labna. On this trip triangulations were made back to Uxmal, and observations taken for longitude and latitude.

Since its return the expedition staff has made the finished drawings for the reproduction to be made at the Chicago World's Fair in 1933. Enlargements have been made of pictures, moulds have been prepared for use, and a large bird's-eye view of the Nunnery has been completed. At present a model of the whole group is being prepared, and two buildings have already been completed.

In Chicago specifications for the buildings are already being made, and the contract will be let on February 1, 1931.

The World's Fair Committee is planning to publish a scientific report of the work undertaken in Uxmal by the explorers from the Department of Middle American Research of Tulane University.

Articles relating to this work have been published in: *Illustrated London News*, August 23, 1930; *Science News Letter*, July 14, 1930, *The Chicago Visitor*, September, 1930; *Military Engineer*, September-October, 1930; *Art and Archaeology*, December, 1930.

UNITED STATES NATIONAL MUSEUM

From June to November, 1930, Henry B. Collins, Jr. was engaged in anthropological work in Alaska. Skeletal material was collected and physical measurements and hand and foot prints were taken on the Eskimo, but the greater part of the time, four months, was devoted to intensive excavation of a series of five old sites at the northwestern end of St. Lawrence island. The oldest of these was unknown even to the Eskimo living less than a mile away; it was completely covered over with moss, soil, and fallen rocks. This old village proved to be a pure site of the Old Bering Sea Culture, the most ancient Eskimo culture known. The occupancy of the four other villages, which were abandoned successively one after another, began during the Old Bering Sea period and continued down to recent years.

A large quantity of material was excavated which shows in considerable detail the changes that came about during the many centuries the Eskimo have lived on the island. The chronology that it was possible to establish was based on: (1) the direct superposition of types in the middens, especially of art and harpoon heads; (2) the demonstrable succession of these forms one into another, mainly in the direction of simplification; (3) the position of the several villages in relation to the sea at the present time and to old beach lines.

Evidence that St. Lawrence island is a remnant of a former land bridge that in Tertiary times connected Asia and America was found in an outcrop of shale and coal containing numerous fossil plants, especially *sequoia*.

UNIVERSITY OF DENVER (Department of Anthropology)

The first systematic archaeological survey of Colorado was undertaken during the summer of 1930 under the auspices of the Smithsonian Institution, the University of Denver, and the Colorado Museum of Natural History. Dr. E. B. Renaud, professor of anthropology at the University of Denver, was director of the survey

and was helped by four field assistants. Fourteen successive camps were established, twenty-seven counties were visited, and nearly 12,000 miles were covered during the season and a few post-season trips. About 300 Indian sites were recorded, comprising 207 camp sites, 68 "blow outs" in the sandy country, 21 workshops, 18 look-outs, and 7 rock-shelters. Tipi-rings were seen at 24 sites.

Over half a ton of flaked stone artifacts was collected besides the bulkier metates, manos, and pounders. Chipped implements recall European specimens of the Lower Palæolithic type, made from cores and roughly flaked by percussion. The majority was obtained from asymmetrical flakes like the Mousterian tools and with a minimum of labor. Some are fashioned on blades like the Upper Palæolithic industry and well retouched by pressure. The Colorado artifacts comprise hand-axes and choppers, turtle-back and discoidal implements, side-scrappers of all shapes and sizes, end-scrappers, knives, borers and drills, dart, lance and arrowpoints, etc. A great many are made of petrified wood from the Black Forest district. In the SE corner of Colorado and the SW part of the area, quartzite of all shades was extensively used. In the SW region gray and black stones, quartzite, and slaty and eruptive materials were employed. In the N, flinty material is seen but no real flint as in Western Europe. Elsewhere river pebbles were often used.

Pottery was found at 38 sites. It is only rough, culinary pottery of two principal kinds, plain and with basket impression. These two classes were collected at an equal number of places along the creeks where more permanent camps were established. Pictographs were seen at eleven sites, mostly pecked petroglyphs, a few incised, and one painted red. By critical comparison of degrees of weathering, differences in technique and style, and by study of superimpositions, three or four periods could be distinguished. These petroglyphs were all found in the Arkansas basin.

Curious stone circles and enclosures made of sandstone slabs from two to six feet high were encountered at four sites on the Apishapa river, thirty-one miles south of Fowler, a town in the Arkansas valley. At one place there were central monoliths and even an underground passage. These strange structures, unique of their kind in Colorado, were probably erected for some ceremonial purpose. Flaked stone implements were collected around them and numerous pictographs were seen in the neighborhood of two of these sites.

Although a thorough survey of such an extensive territory could not be accomplished in one season, it is felt that a fair sampling was obtained truly representative of the region and the results of the expedition, when reported, will constitute the first chapter of the archæologic story of eastern Colorado.

A paper on the Petroglyphs of Southeastern Colorado was read by Dr. E. B. Renaud at the Thanksgiving meeting of the Colorado-Wyoming Academy of Science, at Boulder, Colorado.

UNIVERSITY OF KENTUCKY

(Department of Anthropology and Archaeology)

The archaeological survey of the state of Kentucky, which has been in progress for the past three years and which is now about 70 per cent complete, was still fur-

ther advanced by many excursions and visits to prehistoric sites. The state survey was very greatly aided by a gift of a one and one-half ton truck especially equipped for archaeological survey work. This gift was made by the National Research Council. Scores of sites were described, mapped and photographed, and added to the survey, and three were investigated intensively.

The first undertaking was an exploration of numerous rock shelters in Wolfe county. A report of this work is now on the press and will appear as No. 4 of the publications of the Department of Anthropology and Archaeology.

The second endeavor consisted in the investigation of a mound and burial field at Tolu in Crittenden county, Kentucky. Here a large village site, apparently of the so-called Gordon culture characterized by textile marked pottery, was found to be associated with a prehistoric cemetery. An extensive investigation here provided material for Bulletin No. 5, which is now in process of preparation.

The third undertaking during the summer of 1930 was an intensive investigation of a stone grave cemetery on the Cumberland river in the vicinity of the Kentucky-Tennessee line between Trigg county, Kentucky, and Stewart county, Tennessee. This will form Bulletin No. 6 of the publications of the Department, which is now in process of preparation.

It is hoped that the archaeological survey may be completed within the coming year and be published during the winter of 1931-32.

This department is to be given a very considerable portion of the University of Kentucky's present library building when the removal to a new library building takes place this spring. This space will be utilized for a museum.

UNIVERSITY MUSEUM OF PENNSYLVANIA

The University Museum of Pennsylvania has increased its activities greatly during 1929 and 1930. The increase in the personnel has been considerable. Mr. H. H. F. Jayne was appointed Director in 1929, succeeding the late Dr. G. B. Gordon, under whose able administration the Museum advanced so successfully in previous years. Mrs. Edith Hall Dohan, formerly Assistant Curator of the Mediterranean section, has returned to this section as Associate Curator, and Mr. Battiscombe Gunn, now Associate Curator of the Cairo Museum will shortly assume the position of Curator of the Egyptian section, together with Dr. Leon Legrain of the Babylonian section, Mr. H. U. Hall of the section of General Ethnology, and Dr. J. Alden Mason of the American section, Miss Helen E. Fernald being advanced to Curator of the Oriental section, thus completing the curatorial staff. In the American section Miss H. Newell Wardle, formerly of the Academy of Natural Sciences of Philadelphia, has been made Assistant, and Mr. Edgar B. Howard, Associate. Mr. Louis Shotridge has been advanced in rank to Assistant Curator. Other new scientific associates and assistants unassigned to sections are Dr. D. S. Davidson, Mr. V. J. Fewkes, Mr. Charles Bache, Mr. Linton Satterthwaite, Mr. A. J. Tobler, Miss Margaret Moon, Miss Mary Butler, and Miss Dorothy Cross.

Numerous new archaeological and ethnological expeditions have been carried

out or initiated during this period. In Mesopotamia, in addition to the continuation of the joint expedition with the British Museum at Ur under the direction of Mr. C. L. Woolley, the Museum is also participating in the Harvard-Baghdad excavations at Nuzi, near Kirkuk, Mr. Bache representing the Museum there. Another expedition in collaboration with the Baghdad School under the leadership of Dr. E. A. Speiser is excavating at Tell Billa, and work has been done at Seleucia or Ophis in conjunction with the Toledo and Michigan Museums. In Palestine excavations have been recommenced at Beisan under the direction of Mr. G. M. FitzGerald. Plans are rapidly maturing for work in Persia jointly with the Pennsylvania Museum of Art, probably at Damghan (Hecatompylos), where Dr. Erich Schmidt, formerly of the Oriental Museum, Chicago, will work. Before beginning excavations in Persia Dr. Schmidt will make preliminary excavations at Tell Farah, the site of the ancient city of Shurrupak, in Mesopotamia, which the Museum has recently received permission to excavate.

The excavations at Meydum, Egypt, first started in 1929 under the direction of Mr. Alan Rowe, are being continued.

The joint expedition with the Peabody Museum of Cambridge in Czecho-Slovakia under the direction of Mr. V. J. Fewkes has been conducted for two seasons with particularly fruitful results. Dr. D. S. Davidson has completed a year of anthropological and archaeological research in Australia and Tasmania, and Mr. Gordon Bowles has been dispatched to Southwestern China for similar researches, in connection with a joint expedition with the Academy of Natural Sciences of Philadelphia. The Curator of the Oriental section, Miss Fernald, added to the collections and conducted research in China during 1929 and 1930.

During 1929 Dr. Mason and several assistants pursued archaeological researches in the Pueblo regions of Arizona and New Mexico, and in the peripheral regions of Texas and northeastern Mexico, and in 1930 Mr. Howard did intensive work in the Guadalupe-Alamagordo region of southeastern New Mexico.

In 1929 Mr. Arthur Hopson excavated for the Museum some Thule Culture mounds at Point Barrow, Alaska, and in 1930 Miss Frederica De Laguna made an archaeological study of the regions of Prince William Sound and Cook Inlet, Alaska, with a view toward future field work there. Mr. Louis Shotridge has gone to Alaska to continue his researches among his people, the Tlingit. A joint expedition with the Rochester Museum of New York excavated at Lock Haven, Pennsylvania, in 1929, and in 1930 a mound near Wheeling, West Virginia, was excavated by Mr. Bache, Mr. and Mrs. Satterthwaite, and Miss Butler. It is expected that work will be done in Pennsylvania or the neighboring states each summer, and it is probable that in 1931 the researches will center in the Delaware valley, especially at the Abbott Farm near Trenton, in collaboration with the Trenton Museum.

An aerial-archaeological expedition under the leadership of Mr. Percy C. Madeira, Jr., recently elected to the Museum's board of managers, has just returned from a series of productive, exploratory flights over the Maya region. Last January (1931), Dr. Mason and Mr. Satterthwaite left to begin two seasons' work at the

ancient Maya site of Piedras Negras where a concession to excavate has been granted by the Guatemalan government with permission to remove the stelae which, together with the other objects, will be divided between the Guatemalan government and the Museum.

Mr. Vincent M. Petrullo has left to represent the Museum on an expedition to Matto Grosso, where he expects to study the tribes of the headwaters of the Tapajoz river.

The Museum's Educational Department has been greatly enlarged and the staff of docents increased by the addition of Miss Janet Newlin, Mrs. Elizabeth Horter, and Miss Eleanor Moore. Work among the school children has been enlarged and extended to schools in the state outside of Philadelphia, especially by the establishment of School Museums, for which a grant has been received from the Carnegie Corporation.

The Museum's publications have been increased and their scope somewhat changed. Each issue of the quarterly *Museum Journal* now consists of a scientific monograph, or of a group of monographs upon kindred topics. Shorter notes and Museum news are published in the monthly *University Museum Bulletin*. Another monthly, *Discovery*, records current archaeological and ethnological investigations throughout the world by whomever made, and a monthly children's publication, *The Spade*, is intended to inform the junior subscribers of the various activities of the Museum. The established scientific series are continued and larger monographs have already been issued in the Babylonia Series and the Palestine Series, and the album *Maya Pottery* will be carried to completion; the Museum's artist, Miss M. L. Baker, will shortly leave for Yucatan and Guatemala to paint specimens of pottery for this publication. It is intended to publish the most important manuscripts in the Berendt-Brinton collection and three of these are already in press.

A revision of the installation of the Museum's collections is gradually being accomplished, and many of the halls have been completed. The storage collections in particular are being made available to students, all long-buried collections being cleaned, catalogued, grouped, and made accessible. The entire catalogue of specimens has been copied on cards in triplicate, in order that they may be arranged in numerical, geographical and topical catalogues. Few purchases of new specimens or collections have been made, but the accessions have been nevertheless important, especially in the African field.

The policy of the University Museum is to forward archaeological and ethnological research in all parts of the world, to encourage and to train students interested in these branches of science, and to collaborate with other institutions in this work. Funds will preferably be spent for research and for publication rather than for the purchase of specimens. Exchange of specimens with other institutions is welcomed on the basis of long period loans. In the exhibition halls a selection of the most typical and interesting specimens will be attractively displayed, the bulk of the material being placed in study rooms where it will be easily accessible to serious students, who are welcomed to make free and extensive use of it.

YALE UNIVERSITY
(Institute of Human Relations)

The anthropology section of the division of psychology has moved into its new quarters in the recently completed building of the Institute of Human Relations at Yale University.

Dr. Beatrice Blackwood, of Oxford, stopped in New Haven and New York on her way back to England after a year's work in the Solomon Islands. The work was done on a grant of the National Research Council, under the auspices of the Institute of Human Relations at Yale University.

E. W. P. Chinnery also stopped in New Haven and in New York for a couple of days on his way back to New Guinea.

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THE SECOND INTERNATIONAL CONGRESS OF LINGUISTS will take place in Geneva, August 25-29, 1931. The organization committee includes Ch. Bally, president; E. Muret and V. Martin, vice-presidents. A. Secheyaye, secretary; G. Cuendet, secretary, Ch. Gautier, treasurer. Membership cards will be issued to those transmitting the fee of 20 Swiss francs to Messrs. Pictet & Cie, bankers, Geneva. Communications relating to membership should be addressed to the secretary (M. Albert Secheyaye, Rue de l'Université 5, Geneva). The Comité de patronage includes J. Schrijnen, Ch. Bally, M. Bartoli, F. Boas, C. Brockelmann, O. Jespersen, D. Jones, B. Karlgren, P. Kretschmer, A. Meillet, J. van Rozwadowski.

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We note with regret that Dr. Herman F. C. ten Kate died on the 4th of February, 1931; Dr. John E. Teeple on March 23rd; Dr. George A. Dorsey on March 29th, and Sir Alfred P. Maudslay on January 22, 1931.

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No. 3

THE DOCTRINE OF SURVIVALS: THE HISTORY OF AN IDEA

By MARGARET T. HODGEN

I

THE claim of Edward Burnett Tylor to the attention of nineteenth century students of man is often said to rest upon his doctrine of animism, his theory of adhesions, and his concept of survivals. Of these none, perhaps, has found wider and more unquestioned acceptance than the last, which he formally defined in his *Primitive Culture* in 1871. "When a custom, an art or an opinion is fairly started in the world, disturbing influences may long affect it so slightly that it may keep its course from generation to generation, as a stream once settled in its bed will flow on for ages . . . an idea, the meaning of which has perished . . . may continue to exist, simply because it has existed . . ." These customs, arts, ideas, and opinions of peculiar durability had been referred to for many years as superstitions. "But the term superstition," Tylor pointed out, "now implies a reproach, and though the reproach may often be cast deservedly on fragments of a dead lower culture embedded in a living higher one, yet in many cases it would be untrue. For the ethnographer's purpose . . . it is (therefore) desirable to introduce such a term as 'survival' simply to denote the historical fact which the word 'superstition' is now spoiled for expressing, (namely) that the civilization of the people they have been observed among must have been derived from an earlier state, in which the proper home and meaning of these things are to be found."¹

The cultural materials thus designated have come to form the subject matter of folk-lore, one of the most important and well-tilled areas of humanistic inquiry. Two generations of scholarship have regarded descriptions of the process of survival as adequate explanations of the longevity either of culture as a whole, or of certain types of culture elements. The doctrine is frequently employed as a conceptual tool when problems involving the otherwise undocumented past are set up for solution.

In short, whenever it becomes desirable to account for the existence

¹ E. B. Tylor, *Primitive Culture: Researches into the Development of Mythology, Philosophy, Religion, Language, Art, and Custom*, 1: 70-72 (New York), 1924.

among contemporary human beings of ideas or actions which bear a more logical, significant, and harmonious relationship to earlier systems of ideas or culture, the illogical and inharmonious "misfits" are called survivals. Whenever, lacking dated historical material, it becomes desirable to sketch a prehistoric way of life, survivals are assembled to form together with archaeological data the historian's palette of colors.

It is commonly assumed that Tylor in formulating this important doctrine followed a procedure too often invoked by students of man and imposed a biological concept upon social phenomena.² Darwin's terminology is similar and his slight priority in publication lends plausibility to the assumption. Analysis, however, relieves Tylor of the imputation: for the biologist and anthropologist were dealing not only with different materials but also with different problems.

Darwin's attention in the *Origin of Species* was directed toward living things whose present variety was currently ascribed to change and the appearance of the organically new. The successful variation, which according to his theory resulted in the appearance of a new species, was obviously incorporated in a living unit made up of a multitude of old elements. Strictly speaking, the stability of these old organic elements in the presence of the competitive struggle was a phenomenon as interesting as the viability of the new. But the form in which Darwin stated his problem freed him from the necessity of dealing with the old. Consequently when he appealed to the idea of survival, it was in the interests of the problem of the new.

Tylor's attention, on the other hand, was directed not toward living things, but toward human culture. Equally interested in the problems of change and the new in cultural terms, his attack was less direct than that of Darwin. Old culture elements, particularly old ideas and practices for whose preservation no satisfactory explanation had been offered, obtruded themselves. He was compelled by circumstances unparalleled in the history of biological thought to apportion some effort to the study of this problem. Hence, while the concept of survival solved a problem for Darwin, and referred to the living, the new, organically fit, appropriate, consistent, and harmonious; survival in culture remained for Tylor a problem to be solved, and referred to the non-living, the old, the culturally unfit, inappropriate, inconsistent, and illogical.

If not to biology then where did the great anthropologist go for his tools of thought? He himself quotes Auguste Comte as saying that "no concep-

² W. H. R. Rivers, *Survival in Sociology*, *Sociological Review*, 6, 293-305, 1913; S. A. Cook, *Evolution of Primitive Thought*, *Essays and Studies presented to William Ridgeway*, 385, n. 1 (Cambridge), 1913. Edited by E. C. Quiggin.

tion whatever can be understood except through its history." What is the history of the doctrine of survivals? The answer is to be found in Tylor's early training in geology; in his participation in the merging of the collecting interests of the nineteenth century antiquarian with eighteenth century ideas of cultural development; his endeavor to parallel the archaeologist's widely heralded series of three ages of material culture with a similar series demonstrating man's mental evolution; but primarily, in his heroic effort to rescue the idea of progress as an organizing principle from the attacks of missionaries, theologians, and satirists.

Tylor, it will be remembered, like many other nineteenth century students of social phenomena, accomplished some of his most distinguished work while still a young man in his thirties, and reached conclusions in the study of man on the basis of training and interest in relatively alien fields. Under his brother's influence he became, for a youth, somewhat better than an amateur geologist. In 1856, at the age of twenty-four, he read Humboldt and travelled in Mexico with the geologist-antiquarian, Henry Christy. The influence of these two men may be easily observed in his first publication, a book on his Mexican travels.³ In it he carefully checks his own observations of Aztec irrigation systems, temples, sculpture, and stone weapons against those made by innumerable other observers. But to descriptions of geological formations, archaeological remains, and collections of antiquities, Tylor adds, even in this early work, something of his own, namely, a keen interest in popular rites, peasant festivals, the persistent character of old customs, and the similarities to be observed among widely separated cultures.⁴

The elements out of which a later concept of survivals was to be constructed appear early in Tylor's work and are derived from these varied fields of interest. In Anahuac, the juxtaposition of old and new in culture is remarked, together with the surprising failure of the efficient new to supplant the inefficient old. Repeated efforts are made in succeeding publications to isolate the old for inspection, to characterize it, and to find a place for it in the solution of current ethnological problems. It is plain from these earlier writings that the concept of survivals proceeds, as may be seen from the author's reference to "fragments" of "embedded" culture and the use of the term "superstitions," from Tylor's almost equal interest in prehistoric archaeology and the study of popular customs. These fields, however, remained as relatively distinct in Tylor's mind as they were specialized in material, until an attack on fundamental eighteenth century ideas seemed to make a fusion necessary.

³ *Anahuac: or Mexico and the Mexicans, Ancient and Modern*. London, 1861.

⁴ *Ibid.*, 50-51, 85-87, 100-101.

It will be recalled that eighteenth century thought made a determined effort to erect a science of man upon the foundation of the idea of progress by urging the acceptance of two important views: "first, that the study of European history revealed the fact that there had been a progressive movement of change from ancient to modern times, and, second, that the present condition of 'savage' groups might be taken to represent the early condition of civilized peoples."⁵ The effective employment of these ideas, however, was harder for Tylor and contemporary ethnologists to accomplish than for eighteenth century thinkers and Auguste Comte to suggest. And not least among the obstacles to a naïve appeal to the comparative method and a rapid arrangement of a progressive cultural series was the theory that the cultures of primitive people were the results of a change the opposite of progression, namely, one of degradation.

The idea of degeneration occupied a much more important place in English thought of the first half of the nineteenth century than is generally realized. It was a "common opinion," said one ethnologist in 1865, "that savages are, as a general rule, only the miserable remnants of nations once civilized."⁶ It was an equally common opinion among followers of Rousseau that civilized man had declined from a nobler primitive state. Wesleyans, still more sweeping, accounted all mankind the products of corruption. And satirists of Darwinism asserted that side by side with the "theory of development by natural causes, lies a theory of degradation by the same causes."⁷ The theory of degeneration was often employed by political and religious statesmen to account for their failures in social control or to justify their imperialistic policies. During parliamentary debates on the abolition of the slave trade, frequent efforts were made by supporters of the traffic to prove that the African negro had degenerated from a higher culture or was incapable of improvement. Pro-slavery agitation in the southern states rested flatly on similar theories formulated by American ethnologists. And missionaries, seeking to explain small returns on investments made by homeland congregations in the foreign field, discoursed on the tendency of degraded peoples to relapse after conversion into a prior state of paganism.

Tylor thus reached maturity in an intellectual atmosphere saturated with this alternative to the doctrine of development. But its application to primitive people was apparently brought forcibly to his attention out of

⁵ Frederick John Teggart, *Theory of History*, 90 (New Haven), 1925.

⁶ Sir John Lubbock, *Prehistoric Times, as Illustrated by Ancient Remains and the Manners and Customs of Modern Savages*. London, 1865.

⁷ Letter from Charles Kingsley to Sir John Lubbock in H. G. Hutchinson, *The Life of Sir John Lubbock*, 191-92 (London), 1914. Also, Charles Kingsley, *Water Babies*, 85-87, 277 (London), 1880.

the political economy taught by a man whose qualities soon after elevated him to ecclesiastical office. Richard Whately, Archbishop of Dublin, was the author of several books⁸ and innumerable articles. There were few subjects on which he hesitated to express himself in conversation or in print. His opinions, though dull and ponderous, carried great weight in England during the forty-year period from 1820 to 1860. Cardinal Newman acknowledged his influence, as did John Stuart Mill; W. Cooke Taylor embodied his views on the degeneration of savages in a two volume work dedicated, with "reverential feelings," to His Grace.⁹

His views obtained wide circulation through a lecture on the Origin of Civilization, delivered and distributed in a cheap pamphlet edition about 1857, during Tylor's formative years. It was a re-statement in popular form, without important additions, of an argument used twenty-five years before in Oxford classes in economic theory. In it Whately, following closely Niebuhr's refutation of "ancient speculation on the progress of mankind,"¹⁰ endeavored to confute those economists who, like Adam Smith, found in a theoretical group¹¹, or pair¹² of savages, that state of society from which civilization had advanced. The Archbishop's contention started with a horrified picture of the savage as the missionary saw him, gross, naked, ugly, ape-like, abandoner of the aged, practicer of polygamy, perpetrator of infanticide and cannibalism. "Could this creature be noble?" he asked. Was it conceivable that by the division of labor these degraded peoples could "advance step by step in all of the arts of civilized life?"¹³ The Archbishop's answer was an emphatic negative, which he supported in part by an appeal to history, in part by an appeal to tradition and conjecture.¹⁴ The origin of civilization, he asserted, could not be found in cultures similar to present primitive cultures because "there is no one instance recorded of any of them rising into a civilized state."¹⁵ "Men left in the lowest . . . degree of

⁸ *Introductory Lectures on Political Economy* (London), 1831. *On the Origin of Civilization, Miscellaneous Lectures and Reviews* (London), 1861.

⁹ W. Cooke Taylor, *The Natural History of Society in the Barbarian and Civilized State: An Essay Towards Discovering the Origin and Course of Human Improvement* (London), 1840.

¹⁰ B. G. Niebuhr, *History of Rome* (translated by J. C. Hare and Connop Thirlwall), 1 65 (Cambridge), 1828.

¹¹ Adam Smith, *An Inquiry into the Nature and Causes of the Wealth of Nations*, 1: 55, 57 (New York), 1901.

¹² Adam Smith, *A Dissertation on the Origin of Languages in The Theory of Moral Sentiments*, 507-508 (London), 1853.

¹³ *On the Origin of Civilization*, 26-27, 30-31, 33.

¹⁴ *Introductory Lectures on Political Economy*, 76-77.

¹⁵ *On the Origin of Civilization*, 34.

barbarism . . . never did, and never can raise themselves, unaided, into a higher civilization."¹⁶ According to the records of antiquity, nations reported to have risen from the savage state "in every instance . . . had the advantage of the instruction and example of civilized men living among them."¹⁷ According to the accounts of modern explorers, even those primitive people who had been in contact with Europeans for centuries had remained unchanged in the same wretched condition.¹⁸ The Archbishop regarded this historical record as sustained by references in the legends of savages to an earlier and higher state, and by the occasional presence within backward cultures of one or two arts, "not of a piece with their general rudeness." These he characterized as remnants of a more advanced condition.¹⁹

It is not easy to understand how Whately could have exercised so much influence with arguments in many respects so infirm. The fact remains that he did. The theory of the degeneration of savages, of which in reality he was only a minor prophet, became in the sixties associated exclusively with his name. Defenders of eighteenth century optimism appeared from all points of the intellectual compass. Books were reviewed in terms of his contention.²⁰ Social reformers expressed anxiety over the alternative views presented. "Is there a definite assured law of progress in human affairs—a slow, gradual ascent from the lower to the higher? . . . or was primeval man a developed and superior being who has retrograded and degenerated into the savage state? These are grave questions . . . of high practical intent; for, to know the fundamental law of movement in humanity, is the prerequisite of all wise and successful measures of social amelioration."²¹ Men of science and scholarship, such as Sir John Lubbock, felt compelled to assemble materials to demonstrate the unsoundness of Whately's position. As a public-spirited parliamentarian, Sir John acknowledged the fear that "if the past history of man has been one of deterioration, we have but groundless expectation of future improvement."²² As an archaeologist, he endeavored to restore the modern savage to the good graces of European

¹⁶ *Ibid.*, 42.

¹⁷ *Ibid.*, 35.

¹⁸ *Ibid.*, 34.

¹⁹ Introductory Lectures on Political Economy, 76.

²⁰ Reviews of Charles Kingsley, *Water Babies* (*Anthropological Review*, 1, 272-276, London, 1863) and E. B. Tylor, *Researches into the Early History of Mankind* (*Anthropological Review*, 3, 248-265, London, 1865).

²¹ Sir John Lubbock, *Origin of Civilization and the Primitive Condition of Man, Mental and Social Conditions of Savages*, iv, New York, 1871.

²² *Ibid.*, 323.

opinion by asserting that not only was there "no evidence of any general degradation" among them, but that the most horrible customs were often the outcome of a belief in a future state or other equally good motive.²³ So great was public interest in the matter that Lubbock's anti-Whatelean arguments, delivered in 1867 before an important meeting of the British Association, attracted an unusually large audience "composed of the very elite of Dundee society." And at the following meeting in 1868, the same paper was the subject of an extended discussion in the Anthropology Section in which major men in the field participated.²⁴ As one of the vice-presidents of the section, Tylor was present at this debate and undoubtedly shared the anxiety of others advocating the employment of the idea of progress in the study of man. An inspection of his work reveals, however, that he was not content with a merely logical rebuttal. He endeavored to assemble the literature on the theory of the degeneration of savages,²⁵ and formulated the concept of survivals in order, in his own words, to give the development theory "the upper hand."²⁶

II

To secure a progressive cultural series by the employment of the comparative method, it was necessary, as a first step, to find among present backward and non-historical peoples, one whose cultural state could be equated with the earliest condition of an advanced or historical people, and be regarded therefore as the first, or original stage, out of which all other stages of culture had developed. This was a problem of some interest to travelers and naturalists and the occasion of continuous controversy. "Cook, Darwin, Fitzroy and Wallis were decidedly in favor . . . of the Fuejian; Burckell maintained that the Bushman are the lowest. D'Urville voted for the Australians and Tasmanians; Forster said that the people of Mallicolo 'bordered the nearest upon the tribe of monkeys'; Owen inclines to the Andamans; others have supported the North American Root-diggers; and one French writer even insinuates that monkeys are more human than Laplanders."²⁷ The degeneration theory of savages denied the validity of the comparative method and nullified the value of this absorbing secondary problem. To Tylor it "practically resolved itself into two assumptions, first, that the history of culture began with the appearance on earth of a

²³ Lubbock, *Prehistoric Times*, 337-362.

²⁴ *Anthropological Review*, 6: 84-86 (January), 1868, and 7: 415-423 (October), 1869.

²⁵ Tylor, *Primitive Culture*, vol. 1, chap. 2.

²⁶ *Ibid.*, 2: 357.

²⁷ Lubbock, *op. cit.*, 445-446.

semi-civilized race of men, and second, that from this stage culture has proceeded in two ways, backward to produce savages, and forward to produce civilized men. . . .'²⁸ If, as Whately maintained, backward peoples were themselves the product of a process the opposite of development, not only was the first step in the application of the comparative method blocked, and the construction of a progressive series precluded, but the envisagement of social change in terms of the idea of progress was prohibited. To restore to European thought its faith in progress, primitive peoples must be shown to fall into their appropriate initiatory position in the developmental series.

Confronted with this problem, Tylor's interest in prehistoric archaeology and folk-lore gave him access to two bodies of material. The first was composed of weapons, tools, and bits of pottery "garnered in the grave, chance found amid lacustrine deposits and peat mosses," associated with the lives of human beings who had lived in various northern European areas in the unrecorded and forgotten past. Once these "private hoards of nick-nackets"²⁹ had been assembled in museums and distinguished from the remains of Roman invaders, their classification and arrangement into the evidence for three or more prehistoric stages was rapid and convincing. The work of Thomsen, Boucher de Perthes, Worsaae, and others was fresh in the minds of all ethnologists.

The second body of material was composed of the strange practices, inexplicable beliefs, and irrational ideas of people living in the present. These phenomena, however, had not been handled with any degree of success. In fact, they had not been approached from the standpoint of social or any other science.³⁰ It was well known by more acute observers of human behavior that men, in every other way like themselves, entertained superstitions or what were called for lack of a better term "intellectual crochets,"³¹ "nonsensical and stupid opinions,"³² "fond and foolish customs,"³³ that explanations of phenomena which were untenable to the thinking man were widely accepted; that practices were maintained and rites observed which were out of keeping with modern thought. Furthermore, these quaint and wayward bits of intellectual and cultural flotsam, like ancient coins or

²⁸ Tylor, *op. cit.* 1. 35.

²⁹ Daniel Wilson, *Pre-historic Annals of Scotland*, 1: 20-21 (Edinburgh), 1863.

³⁰ Except in the field of mythology. Andrew Lang offers a brief history of the ancient and modern efforts to account for the irrational element in myths in his *Myth, Ritual and Religion*, chap. 1 (London), 1887.

³¹ Tylor, *op. cit.*, 2: 16-17.

³² *Ibid.*, 1: 94.

³³ John Brand, *Observations on the Popular Antiquities of Great Britain*, xi (London) 1813.

shards of pottery, had long been of interest to the collector and had been written down, classified, and contemplated as "a fashionable study."³⁴

In so far as any attempt had been made to account for the irrationality of these cultural odds and ends, antiquarians had appealed to sources familiar to classical archaeology or to religious prejudices. Commentators on "vulgar errors" in the seventeenth century and collectors of "popular antiquities" in the eighteenth, envisaged these repudiated beliefs and rituals of the ignorant and rural, somewhat as Bacon described the remains of classical antiquity, as "history defaced, or remnants that have escaped the shipwreck of time."³⁵ Aubrey³⁶ and Bourne,³⁷ like Sir Thomas Browne with his Roman burial urns and other antiquarians with their coins, characterized old wives' tales and village superstitions as "remains," "vestiges," and "relics." While John Brand, with a later and firmer grasp on material and non-material culture, remarked with finality, that "vulgar rites and popular opinions . . . are mutilated and, as in the remains of ancient statuary, the parts of not a few have been awkwardly transposed: they preserve, however, the principal traits, that distinguish them in their origin. Things composed of such flimsy Materials as the fancies of a multitude, do not seem calculated for a long duration, yet have these survived shocks, by which even Empires have been overthrown, and preserved at least some Form and Colour of Identity, during a Repetition or Changes, both in religious Opinions, and in the Polity of States."³⁸

In short, it was plain to antiquarians that superstitions, irrational ideas, and folk-tales were among the older elements of non-material culture, and bore a documentary relationship to the lives of human beings who lived in the past; that they were present results of some process of cultural preservation; and that, in the case of folk-tales, folk-dances, burial rites, and similar practices, they had been transmitted by some form of folk-memory. But until Tylor appeared, the question of advancing beyond the romantic, observational, and collecting stage in dealing with them had not been broached. Their illogical and anomalous position within the culture pattern set up a preliminary problem of such magnitude that no one felt able either to account for it, or, having accounted for it, to pass on to the utilization of the material in the further study of man. The very irrationality which had at-

³⁴ *Ibid.*, xiii.

³⁵ Francis Bacon, (1551-1626) *Advancement of Learning*, 103 (New York), 1901.

³⁶ John Aubrey, (1626-1697) *Remaines of gentilisme and judaisme*. London, 1881.

³⁷ Henry Bourne, (1696-1733) *Antiquitates vulgares*. (1725), in John Brand, *Observations on Popular Antiquities* (London, 1777).

³⁸ Brand, *op. cit.*, iii-ix.

tracted the attention of collectors of the quaint had all but alienated the interest of the scholar.

When Tylor, in need of an argument to defeat degenerationism, was brought face to face with these two bodies of human material, their arresting similarities suggested a means not only of reconciling their differences but also of confirming his belief in the validity of the theory of development. Both were useless, inconsistent, and out of harmony with contemporary culture. No Britisher in the sixties would have relied for self-defense on a chipped flint arrowhead. And although strange gods were occasionally invoked at British wells and decisions rendered by the key and the book, those who appealed to such non-orthodox and extra-legal devices regarded them as ends in themselves; as folk-ways which were as unrelated to current need and statute as was the arrowhead to the high-powered rifle. Nevertheless, the excavated arrowhead, while of no use to the man-in-the-street, was of surpassing utility to the student of the past. As found it was often a fragment. It had obviously undergone many vicissitudes of weather and soil. But it had plainly been fashioned by an earlier human hand and could have served an earlier man in time of need. Given a small piece, the archaeologist could not only recover the outline of the original implement, but with its help could imaginatively reconstruct much of the life and culture of the men to whom it was once a necessary means of self-preservation. With these facts in mind, Tylor the archaeologist gave Tylor the collector of popular antiquities his assistance; and together they were enabled conceptually to lift the inexplicable, irrational, inconsistent, and anomalous in present advanced non-material culture out of its incongruous modern matrix; to account for it in terms of strips and tatters,³⁹ cultural fragmentation or decay,⁴⁰ mutilation⁴¹ or dwindling,⁴² and more important, to employ it for purposes of documenting prehistoric and savage culture. For although the results of an effort to retrieve the outlines of a "dwindled," "decayed," or "mutilated" practice or belief might be more debatable than the results of the same effort applied to a piece of earthenware, once recovered and labeled as a practice or belief of prehistoric Europeans, the collector of vulgar rites and opinions had only to take a familiar next step and identify that state with the culture of contemporary savages. With that step the comparative method was vindicated, the modern savage rehabilitated and

³⁹ E. B. Tylor, *On Traces of the Early Mental Condition of Man*, *Proceedings of the Royal Institution of Great Britain*, 5: 93, 1866-69.

⁴⁰ E. B. Tylor, *Primitive Culture*, 2: 136-137.

⁴¹ E. B. Tylor, *The Religion of Savages* *Fortnightly Review*, 6: 71-86.

⁴² E. B. Tylor, *Primitive Culture*, 1: 78, 136-137.

reinstated in the developmental series, and the idea of progress rescued for the nineteenth century.

Tylor was the author of over two hundred and fifty papers and five books, all of singularly high and even quality. The two treatises for which he is remembered⁴³ were published in 1865 and 1871, during the first ten years of his working life, a period spent almost entirely in satisfying himself that social development rather than social degradation was the rule. His work was early remarked by his contemporaries for the penetration with which he recognized materials hitherto unknown or neglected,⁴⁴ and the originality with which they were employed. But this absorption in furthering the project of demonstrating the validity of the idea of progress as a principle of arrangement overshadowed every other consideration. Although Tylor was alert to all the problems of mid-century ethnology, his judgment of other scholars was often dependent upon their willingness to be equally certain of its applicability. In reviewing even so learned a man as Wilhelm von Humboldt, Tylor regretted that although he divided the array of known languages into three great classes, "he treated these stages of languages as belonging rather to an ideal than to an historical progress."⁴⁵ Tylor formulated theories with scientific tentativeness, but the reader of his earlier and more vigorous work cannot avoid the conclusion that their structure and merit are derived from the emotional zest with which he entered the lists in favor of the progressionists.

Whately's indictment of contemporary savages contained two counts. One rejected them as products of degeneration from the developmental series. The other denied them the power of unassisted improvement. There are indications that Tylor was familiar from the first with the analogy which had from time to time been drawn between archaeological finds and the rural antiquities collected by such men as Aubrey, Bourne, and Brand. But he did not employ it, nor did he designate it as the doctrine of survivals, until he had made several other efforts to meet the clergyman's contentions.

The earliest and least successful counter-argument seems to have been borrowed from that side of a current controversy over the negro's place in nature which relegated the black men to a separate species and intercalated him in the series above the apes but below the whites. Unmoved by racial

⁴³ *Researches into the Early History of Mankind and the Development of Civilization* (London, 1865) and *Primitive Culture: Researches into the Development of Mythology, Philosophy, Religion, Language, Art, and Custom* (New York, 1924).

⁴⁴ Report on *Researches into the Early History of Mankind*, *Anthropological Review*, 3: 248 (October), 1865.

⁴⁵ E. B. Tylor, *Science of Language*, *Quarterly Review*, 119: 394-435.

and economic prejudices, Tylor had no desire to degrade a backward people. He wished, on the contrary, to refute Whately by finding evidence that all primitive peoples, including negroes, were already in a state of advancement over a semi-human group still lower in the scale. In order to achieve this purpose, he appealed characteristically to the materials with which he had begun to familiarize himself, namely, the folk-lore and myths of men living as beasts among beasts and of children nurtured by animals. But when these were weighed and sifted in a paper entitled, *Wild Men and Beast Children*, written when he was thirty-one years of age, he was forced to come to the reluctant conclusion that the evidence proved nothing "except the existence of the stories . . . and . . . of people who believed them."⁴⁶ Whately remained unanswered.

It was Tylor's conviction, followed in laborious personal practise, that more profitable work could be done by collecting data than by spinning theories. He objected with particular emphasis to the construction of sweeping generalizations on the foundation of one or two unchecked facts. Said the scientist to the philosopher, "If self-improvement is to be denied to the savage, the least that can be asked is a good number of cases of tribes who have had a fair trial under favorable circumstances and have been found wanting."⁴⁷ In the Archbishop's disregard of some of the more obvious rules of evidence, the anthropologist, therefore, found cause for criticism which he was not slow to take. Whately's statement that primitive man could improve only after contact was described as a speculation reached "in beautiful ease and confidence" without supporting data. Furthermore, the theologian was successfully convicted of violating the context of a passage in Darwin's *Voyage of the Beagle* and of wilfully suppressing statements which would have weakened the case for the degenerationists.

It was one thing to criticize the scanty selection of facts brought forward by the degenerationists to sustain their claims that savages were fundamentally different from Europeans and lacked the European's assumed innate power of invention and self-improvement. It was quite another to prove the contrary,—to prove that the miserable native of Tasmania or Tierra del Fuego, whom Whately delighted to dishonor, could lift himself unaided to a knowledge of the fine arts, an elevated level of religious thought, and a British standard of family life.

It was plain to Tylor that a verdict in favor of the progressionists could never be reached if the missionary's conception of primitive culture pre-

⁴⁶ E. B. Tylor, *Wild Men and Beast Children*, *Anthropological Review*, 1: 32 (May), 1865.

⁴⁷ E. B. Tylor, *Researches*, 160-163.

vailed among scientists. Throughout his work he repeatedly deprecated the want of liberal judgment among the clergy at home and overseas and deplored their proneness to sneer at what they did not take the trouble to understand.⁴⁸ He was convinced that their scale of cultural values could not be accepted as the basis of ethnological study and he tried to neutralize Whately's stern condemnation of savage vices by drawing up a friendlier catalogue of their moral virtues. The Archbishop was reminded somewhat tartly that the civilization of Europe, which he had made the capstone of human achievement, was not always virtuous. According to Tylor, it might very well mean merely that men "have learned to give poison secretly and effectually . . . , have raised a corrupt literature to pestilent perfection . . . , have organized a successful scheme to arrest free inquiry and proscribe free expression."⁴⁹

It was plain to Tylor, furthermore, that raw facts, no matter how numerous, had no theoretical value without arrangement and utilization with reference to the central, unsolved problem of social development, namely, the original diversity or similarity of the human mind. If, at last, the facts supported the assumption of original mental differences, a view widely held at the moment among ethnologists swayed by the arguments of pro-slavery agitators, the cause of the progressionists was lost. Men and cultures might be subject either to advance or decline. If, on the other hand, the data supported the assumption of original unity, equality, and similarity, primitive man, like European man, bore in him a common human capacity for self-improvement. Those of Tylor's predecessors who, like him, were committed to an optimistic view of man's past and future, had been content with amassing likenesses in culture in order to prove similarity of mind. Tylor, more discerning, realized that heaping up illustrations was not proof; that correspondence in custom did not necessarily arise from correspondence in origin. It was clear that the obvious likenesses between the activities of present primitive peoples and the peoples living in the early stages of historical or European cultures might be due to borrowing, in which case the progressionists were again unsupported. It was possible, on the contrary, that like practices and ideas were due to common inheritance or independent invention, in which case the cause of the progressionists was safe.

Tylor's first important book entitled, *Researches into the Early History of Mankind and the Development of Civilization*, published when he was thirty-three years of age, is composed of essays which address themselves

⁴⁸ E. B. Tylor, Review of Max Muller, *Chips from a German Workshop*—*Fortnightly Review*, 9, 227-228.

⁴⁹ E. B. Tylor, *Primitive Culture*, 1, 28.

to various aspects of this matter. It is a milestone in anthropological thought for two reasons. It contains the long overdue three-fold division of the problem of similarities. It also formulates the results of a first tilling of "great masses" of material on the "early history of man" which had "long been forthcoming" but had as yet been turned to little account.⁵⁰ It had been the habit of contemporary ethnologists to seek solutions of human problems in terms of anatomical description and physical comparison of peoples. Antiquarians, archaeologists, collectors of folkways and ballads, mythologists, philologists, and students of comparative religions had pursued their separate ways, out of touch with each other and with ethnology. Although not the first to lay several of these studies under tribute, Tylor is notable for the mastery which he secured over their literatures. In the *Researches*, he drew heavily on his philological studies. The examination of similarities is carried on in terms of gesture language, picture writing, and, to a lesser extent, archaeological materials. As a result of this inspection he came to the conclusion that if "the similar thing has been produced in two places by independent invention then . . . it is direct evidence of the similarity of (the primitive) mind (everywhere, at all times). And on the other hand, if it is carried from one place to another . . . then the smallness of the change it has suffered in transplanting is still evidence of the like nature of the soil (mind) wherever found."⁵¹ In short, similarity of custom, whether due to invention, inheritance, or borrowing, strongly suggested to Tylor the similarity of the inventing or borrowing minds, and supplied added data for meeting the arguments of the degenerationists.

The *Researches*, assuming its conclusions to be unassailable, reinstated the savage in the progressive series. Tylor, however, was too well aware of the difficulties involved in arriving at the sources of similarities to be satisfied with his case as it stood. He began immediately upon the construction of a new argument based upon still newer materials. The plan of this argument was designed to uphold primitive man in his restored status. He had been endowed with mental qualities similar or equal to European man; it was now to be maintained that he was modern man's cultural ancestor, whose ideas and practises had been handed on and cherished in a direct line. In assembling evidence to sustain this position, Tylor was not unmindful of the persistence in an unchanged form of savage culture elements in advanced societies. But under the influence of his archaeological and geological training in the reconstruction of the past on the basis of fragmentary remains, he was led to ignore this group of facts. He referred to

⁵⁰ E. B. Tylor, *Researches*, 2.

⁵¹ *Ibid.*, 373 (parenthetical explanations are added to Tylor's text).

them as of negligible interest, illustration of "mere permanence of culture."⁵² His attention was captured by ideas and practices which, like the archaeological fragments, seemed to him to bear the scars of history in their present "dwindled" or "mutilated" condition. He preferred to collect survivals, materials which presented indications of the loss of utility through wear and tear or displacement. He felt, furthermore, that these new antiquarian mines of historical material could be contemplated with less distraction than "those seething problems of the day on which action has to be taken amid ferment and sharp strife." He believed that the ethnographer's course "should be like that of the anatomist who carries on his studies on dead rather than on living subjects."⁵³

Primitive Culture: Researches into the Development of Mythology, Philosophy, Religion, Language, Art, and Custom, which appeared in 1871, and two papers, read before the Royal Institution, which preceded it, were drafted manifestly to carry out this program of apprehending old ideas as old artifacts. The use made of the doctrine of survivals differs in the two papers. In the first, *On Traces of the Early Mental Condition of Man*,⁵⁴ "old notions in a modified condition" are employed as clues to the past, and a trial reconstruction of the early mental state of man is attempted. In the second, *On the Survival of Savage Thought in Modern Civilization*,⁵⁵ interest in the recovery of an earlier state is temporarily dismissed and the problem inverted. The doctrine of survivals is invoked in order to explain phenomena in the present which had hitherto been inexplicable.

Primitive Culture is the mature statement of a seasoned scholar. In it Tylor wisely chose to return for review to his original problem, progression versus degradation, and to the arguments for each side of the controversy. Although he remained convinced that "the main tendency of culture from primeval up to modern times" was from savagery to civilization,⁵⁶ he acknowledged other modes of connection such as degeneration, survival, and revival.⁵⁷ He also admitted the possibility that degeneration might operate more actively in lower than in higher cultures.⁵⁸ He met Whately's strongest argument for degradation, the absence of historical evidence for an unaided transition from savage to advanced culture, with a liberalized definition of the materials to be admitted as testimony. He deplored the reliance

⁵² E. B. Tylor, *Primitive Culture*, 1: 70.

⁵³ *Ibid.*, 1: 158.

⁵⁴ Proceedings of the Royal Institution of Great Britain, 5: 83-93, (March 15), 1867.

⁵⁵ *Ibid.*, 5: 522-535 (April 23), 1869.

⁵⁶ Tylor, *op cit.*, 1: 21.

⁵⁷ *Ibid.*, 1: 17.

⁵⁸ *Ibid.*, 1: 46.

of students of man upon the speculations of historians and the tales of travelers in the new world. He pleaded for the exploration and study of philology, archaeology, and "old traditional folk-lore." In support of this plea, he pointed out that the study of philology had already bought out the "undesigned history of language." He reminded his readers that archaeology not only displayed the "old structures and buried records of the past," but did so with such force and convergence of testimony that the theory of degeneration was resisted rather than required.⁵⁹ The virgin territory of folk-lore, though undated, he regarded as susceptible to sequential arrangement.

The data of archaeology is little used in *Primitive Culture*, except as a guide to the theory of development illustrated by the serial arrangement of artifacts.⁶⁰ Language is discussed as a means of sustaining the right of primitive people to a place in the series, but secondarily, and with repetition from the *Researches*. Tylor's most vigorous efforts were given to the search for existing but outworn practices and ideas which could be traced to an early stage of advanced culture and paralleled with similar elements in the cultures of existing savages. In choosing survivals with which to demonstrate the value of this procedure, he made no attempt to be exhaustive. Following the example of the collectors of ancient and medieval vulgar antiquities, he gave the pastimes of children, nurses' fables, games of chance, riddles, proverbs, the arts of divination, and the obviously quaint first attention. In children's games were to be found, according to the doctrine, a record dwindled to sportive survivals of the playful imitation by little savages of the serious and often warlike activities of their elders.⁶¹ Arts of divination, gambling games, and traditional sayings were to be regarded as documents, broken down or faded by time, by which primitive man's philosophical system might be recovered. Owing somewhat to the theological source of the attacks on progressionism and somewhat to the relatively untapped reservoirs of material on religious practices, Tylor's major work was done in this field. Myths were scrutinized for their underlying principles, savage rituals were analyzed to find "the deeper motive which underlies them," and "the fundamental animism of the lower races" was traced in broken but developing outline "into the higher regions of civilization."⁶² Thus Tylor reached the conclusion, so important to succeeding students of religion and culture, that "the belief in the animation of all nature"

⁵⁹ *Ibid.*, 1: 42, 53, 61.

⁶⁰ *Ibid.*, 1: 68.

⁶¹ *Ibid.*, 1: 78.

⁶² Tylor, *op. cit.*, *passim*.

which arose in the "savage condition prevalent in remote ages among the whole human race"⁶³ stands unaltered among living primitive peoples as if it grew there, and survives as an ancestral relic among the European peasantry.⁶⁴ Thus the book ends on a note of optimism, linking the doctrine of survivals to nineteenth century aspiration for social improvement by asserting that it is the "office of ethnography to expose the remains of crude old culture which have passed into harmful superstition and to mark these out for destruction."⁶⁵ Thus a final answer was made to the Archbishop in terms of his own specialty.

In appraising Edward Burnett Tylor and his doctrine of survivals, it becomes apparent that in formulating it he filled the rôle of a conserving rather than an innovating figure. He directed his efforts toward patching rents in the eighteenth century methodological fabric rather than toward attacking the problem of differences in culture from a new point of view. Although he was less ready than many of his intellectual generation to accept all similarities in manners and customs as of equal evidential value in the reconstruction of the early history of man,⁶⁶ there were other old methodological ideas to which he loyally adhered. With his contemporaries he accepted the idea of progress or development and employed the comparative method. With them, he utilized clues afforded by excavated artifacts. Like them, his attention was caught by the irrational but tenacious character of some beliefs and practices. This he ascribed to their greater age and their derivation without development from savage ancestors. The identification between what was regarded as the functionless old among advanced peoples and non-material culture elements among backward groups, he accepted as made by predecessors. For purposes of reconstruction he likewise accepted the identification between the folk-lorist's materials and the archaeologist's discoveries of ancient earthenware, stone, and metal objects.

It is of interest to note that even after committing himself to the guidance of archaeology, Tylor, the folk-lorist, could not remain rigidly faithful to the analogy. Survivals of non-material culture in the strict sense of the doctrine were dead matter, mental fragments broken off from mental structures. In his mind, however, they could not so remain. The claims of a still more ancient concept, that of motion or change modeled on organic growth, tempted the writer, if not the thinker, to speak of them as "rudi-

⁶³ *Ibid.*, 2: 283.

⁶⁴ *Ibid.*, 2: 357.

⁶⁵ *Ibid.*, 2: 453.

⁶⁶ Teggart, *op. cit.*, 108-109.

mentary," "germinal," "living-on," or "out-living" other elements. The choice of the word "survival" as a taxonomic device is another illustration of the same influence. Tylor recognized that the presence of an old ritual, an old superstition, or an old folk-tale sets up a problem of persistence which does not arise in connection with old artifacts made of stone or other durable material. The architect's and the archaeologist's classificatory use of the term "vestigial" failed to meet this need. But the term "survival," with its implication of a potentiality to over-live the mortal span of life, tempted and won him.

Tylor's contribution in terms of the doctrine of survivals resolves itself, therefore, into the reiteration of assumptions which for several centuries had lain side by side in thought, if not in synthesis. And the popularity of the newly christened, if far from new-born, doctrine was in no wise arrested by Darwin's dramatic but different use of the same term.

UNIVERSITY OF CALIFORNIA,
BERKELEY, CALIFORNIA

AN ANALYSIS OF THE NORTHWESTERN CHIHUAHUA CULTURE¹

By HENRY A. CAREY

INTRODUCTION

CHIHUAHUA is a northern frontier state of Mexico, bounded on the north by New Mexico and Texas, on the east by Coahuila, on the south by Durango and Sinaloa, on the west by Sonora. It is largely desert land, except the western portion where the Sierra Madre range extends almost its entire length and continues southward.

The region with which this paper is concerned lies in the northwestern part of the state, the extension being from the United States boundary to an undetermined distance south of the Mexican town Temosachic. The intervening distance is roughly 250 miles.

The northern part of this area is a plateau 4,000 feet in altitude, with hills here and there which are barren of vegetation except for mesquite bushes and varieties of herbs. Through this plateau the Rio Casas Grandes, whose source lies far to the south, cuts its course and makes a great bend southward, in the rainy season emptying into Lake Guzman some 60 miles south of the American border. In the dry season no water flows in the channel. The Mimbres valley of southern New Mexico is in the same drainage, but its waters are absorbed in the sandy soil long before reaching the lake.

Following the direction of the Rio Casas Grandes southward one enters a long, wide valley formed by the Capulins and the Sierra de la Escondida to the east, and the Sierra Madre to the west. It is about 50 miles in length and 20 miles in width. Here the river flows the year round, the soil is plentifully watered and fertile along its reaches, and crops in abundance may be grown. Land rich in grasses provides ample sustenance for the raising of cattle. This locality is known as Casas Grandes valley. Several Mexican towns have arisen here, the most important being Colonia Dublan, New Casas Grandes, Colonia Juarez, and Pierson (see fig. 1).

South of Pierson the Sierra Madre makes a great swing to the east, forming the southern limit of the valley, and its summit rises to an altitude of 8,500 feet. Across this divide, 50 miles south of Pierson, in the midst of the range is a plateau, the length of which is about 30 miles and the width 15 miles. This is Babicora plains, well watered and fertile, where ranchers now grow corn and raise cattle. Still further south in the mountains Mexican settlements have sprung up where opportunity for livelihood by farming

¹ Submitted in partial fulfillment of the requirements for the degree of Doctor of Philosophy in the Faculty of Philosophy, Columbia University.

or cattle grazing is offered. Throughout its entire extent in this region the Sierra Madre is rugged and in places almost impassable. Deep canyons drop hundreds of feet to rushing streams below, while the flora, consisting largely of white pine, madrona, century plant, and cactus, clothes the

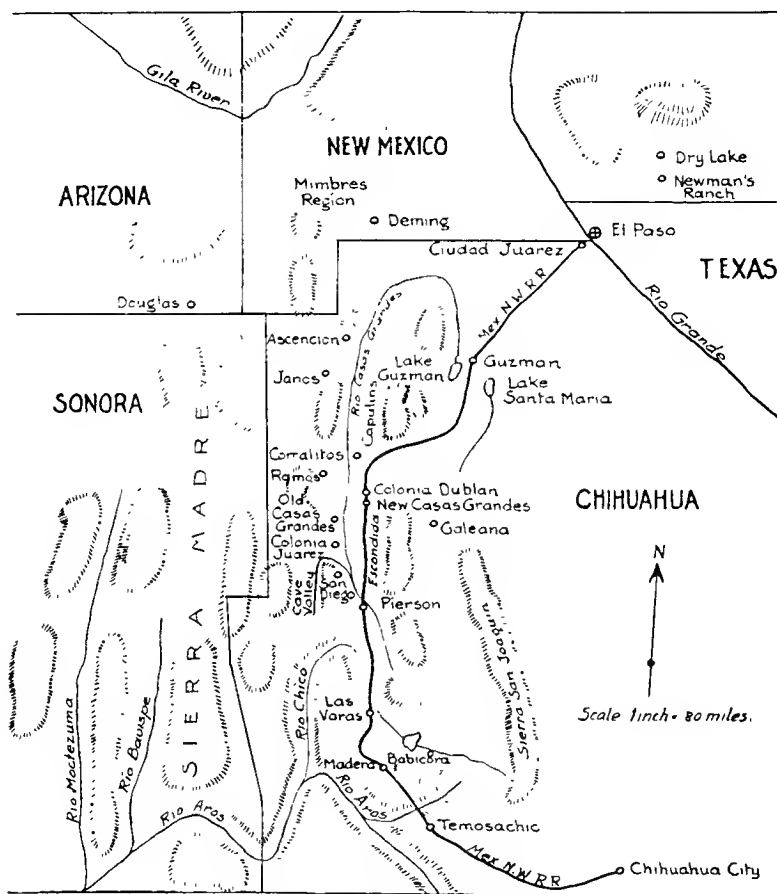


FIG. 1. Northwestern Chihuahua.

mountainsides thickly. The fauna is of the same variety as that in the American Rockies. Bird life includes the macaw and the giant woodpecker.

Through this district, connecting El Paso with Chihuahua City, the state capital, and touching at the more important settlements, runs the

Mexican Northwestern Railroad, a line built to promote the lumbering industry at Madera.

In the region just described an Indian culture once existed. Earth mounds of varying size occur in Casas Grandes valley along the watersheds. At one site there are "casas grandes" or great houses of adobe, only the broken walls of which now remain. To the south, in the Babicora plains district, and continuing in sporadic groups an undetermined distance southward, are other mounds.

About 15 or 20 miles to the west of Casas Grandes valley in the canyons of the Sierra Madre are many groups of cliff-dwellings of wood and adobe. They are built across the mouths of caverns or under overhanging cliffs. The inhabitants have long since disappeared and have left no trace of their ultimate destiny.

In years past many of the mounds of the Casas Grandes have been opened by Mexicans in search for antiquities which could be sold. These mounds contain the remains of ancient Indian communal dwellings of adobe, walls broken down, but still possessing coatings of plaster. Beneath the floors, usually below corner walls, the burials occur. Surrounding the skulls, ceremonial objects are found, including pottery, carved stone images, stone and shell beads, turquoise ornaments, copper bells, and other articles.

Quantities of this archaeological material have been introduced into our American museums through Mexican speculators in pottery, and thus important cultural features have presented themselves. However, as yet few definite conclusions have been reached, first, because data as to specific site of origin or conditions found in excavation are lacking; secondly, prior to my attempted excavation in 1928, very little systematic work had been conducted in the region.

Since archaeological investigation in the region has been scant it is necessary to ascertain its development as well as its relationships so far as possible and to classify it accordingly. Internal relationships are defined as those occurring between centers within the general culture-province itself, by which the relative homogeneity of culture traits is disclosed and the extent of the culture determined. If there is homogeneity between centers and the traits are sufficiently differentiated from those of contiguous areas, the province may be treated in general comparisons as a unit, or, in ethnological terminology, as a culture area. External relationships are defined as those existing between two or more culture areas.

An archaeological investigation here is important for three reasons. It is important, first, to discover the relationship of the cliff-dwelling culture of the Sierra Madre and the mound culture of the open country. Further,

the place of these cultures in their relationship to the better known cultures of contiguous regions may be ascertained. Finally, a study of the local and more extended relationship of the cultures of the Chihuahua province will undoubtedly aid in the interpretation of some of the present obscurities of Southwestern archaeology since it was apparently one of the connecting cultures between Mexico and the Southwest.

ANALYSIS AND DISTRIBUTION OF POTTERY TYPES

In this region deposits of rubbish in which stratigraphic data might be obtained are, up to the present time, unknown. Cross-finds of Chihuahua pottery by which relative time relations with contiguous areas might be ascertained have been located at but one site in subareas of the North American Southwest.² Excavation by myself and my assistants in earth-covered mound houses exposed potsherds lying at varying depths between the ground surface and the house floors, but the determination of a sequence of pottery types from such data would be meaningless because burials accompanied by many types of the pottery occur beneath the floors. One refuse deposit four feet deep, showing a changing series of pottery types, was located on the Corralitos ranch. In the south, on Babicora plains, superposed floor levels in mound houses disclosed a difference of wares. With these exceptions no sequence has been obtained. However, these examples could not govern the cultural sequence of all the sites in the region, nor could the sherds found therein offer sufficient data whereby all cultural relations could be determined.

The problem, therefore, becomes largely dependent upon the analysis and interpretation of the typology of objects buried with the dead, of mound structures, and of conditions occurring within them. If sufficient homogeneity of culture traits exists within the region to permit the whole to be designated a culture area, then analytic comparison with traits of contiguous areas may be made. Elements common to both may be found, indicating the occurrence of intertribal contact. Conclusions with respect to interareal development and relations may then be drawn.

As mentioned above, several of the museums in the United States possess collections of antiquities from northwestern Chihuahua, the specific centers of origin of which are unknown. Therefore, a study of Chihuahua pottery and archaeological objects of museum collections of known origin was made by me in 1927 and 1928. During the summers of 1928 and 1929 I conducted field expeditions into the region, exploration and excavation being carried on in various localities. The following data for individual cen-

² Schmidt, 279.

ters in the district were thus obtained both in museums from collections of known origin and in the field.

SAN DIEGO (LUMHOLTZ COLLECTION)

San Diego is situated 20 miles south of Old Casas Grandes near the Rio Casas Grandes (see fig. 1). Lumholtz explored this region in the early nineties,³ excavated mounds, and secured pottery now in the American Museum of Natural History, from which collection the data in table 1 were obtained:

TABLE 1. VESSELS OF THE LUMHOLTZ SAN DIEGO COLLECTION

<i>Pottery types</i>	<i>Shapes</i>	<i>Decoration</i>	<i>No. pieces</i>	<i>Per cent</i>
Polychrome, red-and-black-on-buff	Effigy-vessels, ollas, small bowls	Paneling, life designs in plumed serpent and parrot, opposed step, leaf design, scrolls, key, bent triangle, fine line work, good finish.	72	21
Red-and-black, white slip	Same as above	Same as above, but absence of life designs. Execution of designs and general technique is rather coarse.	35	10
Red-and-black-on-brown	Same as above	Same as above, but no life designs, execution generally poor.	11	3
Dark brown-on-gray	Ollas	Same as above, a few life designs, execution generally poor.	9	3
Black-on-red	Effigies, ollas, bowls	Same as above, life designs on 1 piece only, execution poor.	8	2
Polished red ware	Effigies, ollas, bowls		7	2
Red incised	Small ollas	Diagonal and parallel incisions, rows of holes.	20	6
Unpolished black	Large ollas	Incisions in lines on body.	4	1
Polished black ware	Effigies, ollas, bowls		123	36
Plain buff ware	Small ollas		54	16
Corrugated	Sherds only		—	—
			343	100

³ Lumholtz, 1: 93.

OLD CASAS GRANDES

"Old Casas Grandes" designates the site of the great ruins of adobe from which the present village obtains its name. These structures when occupied probably stood at least three stories in height.⁴ A fine quality of pottery has been obtained from this vicinity, but few specimens in the museums are definitely classified as to point of origin. Lumholtz seems to have secured only five specimens from this site, which are now in the American Museum of Natural History. They agree in type, shape, and decoration with the San Diego ware. A random selection of surface sherds picked up by me in the vicinity of the great ruins showed:

TABLE 2. SURFACE SHERDS FROM OLD CASAS GRANDES

<i>Pottery types</i>	<i>Decoration</i>	<i>No. sherds</i>	<i>Percent</i>
Polychrome, red-and-black-on-buff	Panel, designs in agreement with those of San Diego ware.	11	24
Black-on-red	Straight broad lines.	4	9
Polished red ware		8	18
Red incised	Parallel and diagonal lines.	7	16
Polished black ware		6	13
Plain buff ware		6	13
Corrugated		3	7
		--	--
		45	100

PIERSON

Pierson is located about 12 miles south of San Diego on the Rio Casas Grandes. A small number of sherds picked up near mounds showed that pottery types and decoration agree with those of San Diego and Casas Grandes.

COLONIA DUBLAN

Colonia Dublan is situated 5 miles north of Old Casas Grandes. A random collection of sherds picked up in the vicinity of mounds showed:

TABLE 3. SURFACE SHERDS FROM COLONIA DUBLAN

<i>Pottery types</i>	<i>Decoration</i>
Polychrome, red-and-black-on-buff	Panel, triangles, step designs, fine execution.

⁴ Kidder, I, 115.

Black-on-gray	Triangles, checkerboard design.
Black glaze-on-yellow	Triangles.
Polished red ware	
Red incised	Parallel lines.
Polished black ware	
Plain buff ware ⁵	

CAVE VALLEY (LUMHOLTZ COLLECTION)

Cave valley is situated about 20 miles west of San Diego in the Sierra Madre. Lumholtz secured sherds from mounds in the vicinity⁶ which are now in the American Museum of Natural History. The data in table 4 were taken from this collection:

TABLE 4. SHERDS FROM THE LUMHOLTZ CAVE VALLEY COLLECTION

<i>Pottery types</i>	<i>Shapes</i>	<i>Decoration</i>
Polychrome, red-and-black-on-buff	Human effigies. ollas ⁷	Panel, typical valley designs, but of poorer execution.
Polychrome, red-and-black-on-gray	Ollas	Panel, typical valley designs, poor execution.
Buff ware	Ollas, lip handles	Incised necks, diagonal incised lines on body, or no decoration.
Unpolished black ware	Ollas	Diagonal incised lines on body, or no decoration.
Corrugated ware	Large ollas ⁸	

CORRALITOS

Corralitos is situated on the Rio Casas Grandes, 15 miles north of Colonia Dublan. A refuse deposit just east of a large mound, 2 miles southwest of the Corralitos ranch house, was located in the summer of 1929. This was a small mound composed of sherds and loose earth, having a height of 1 foot above the ground surface. It proved to be the apex of a deposit of sherds which the former inhabitants of the near-by ruins had thrown into a pit. The diameter of the deposit at ground surface was 9 feet. Trenches were dug on the east and west sides to determine its approximate depth and direction beneath the surface. Four strata of 1 foot each were cut. The section above normal ground surface was considered, since it represented the

⁵ The small number of sherds found here does not admit of percentage tabulation.

⁶ Lumholtz, 1: 80.

⁷ The sherds are large and vessel shapes can be ascertained from them.

⁸ No attempt is made to give percentages of wares from a museum collection of sherds.

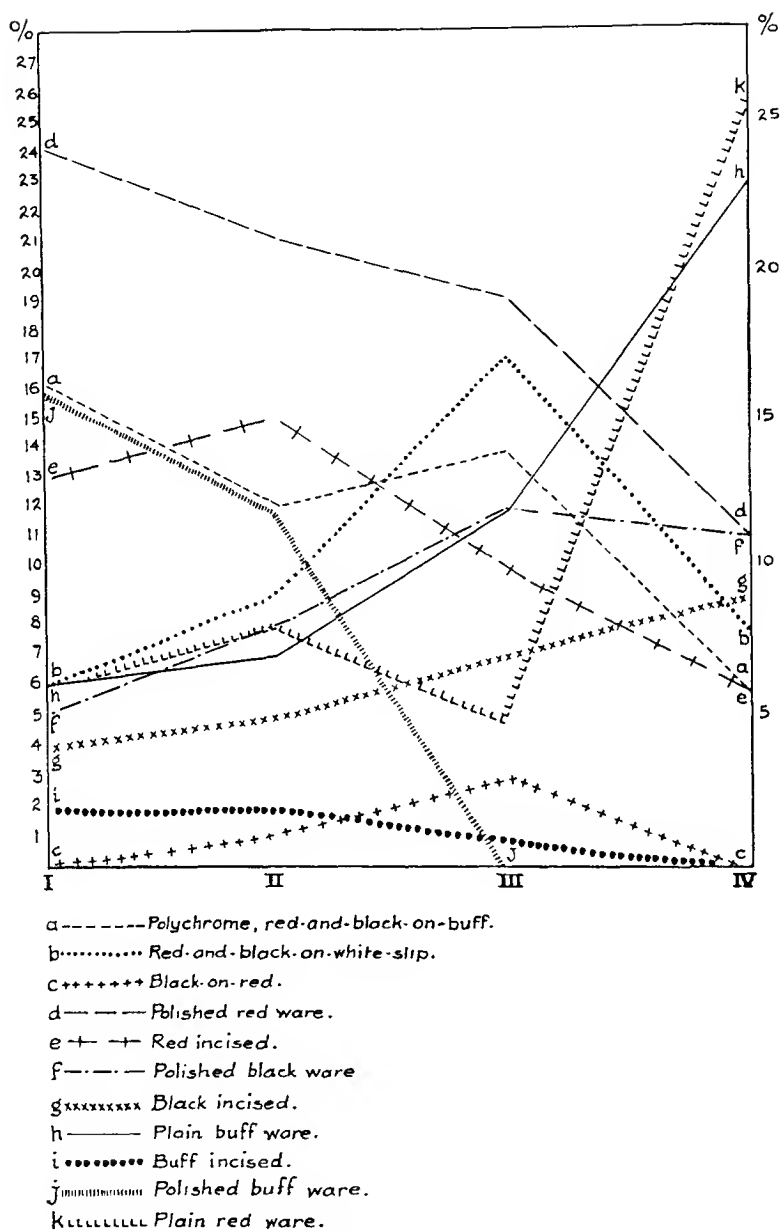


FIG. 2. Distribution of sherds at Corralitos

upper portion of the deposit, but sherds found on the actual mound surface were ignored. The statistics for this site are given in table 5. The column numbered 1 represents the top stratum:

TABLE 5. SHERDS FROM THE CORRALITOS REFUSE DEPOSIT

Strata no.:	No. of sherds				Total	Percentages				Total
	1	2	3	4		1	2	3	4	
Red-and-black-on-buff	81	83	35	13	212	16	12	14	6	13
Red and black, white slip	31	62	43	16	152	6	9	17	8	9
Black-on-white	7				7	1	x	x	x	x
Black-on-red		4	7		11	x	1	3	x	1
Black-on-orange	1		1		2	x	x	x	x	x
Polished red ware	124	144	48	22	338	24	21	19	11	20
Red incised	66	101	26	12	205	13	15	10	6	12
Polished black ware	25	51	29	22	127	5	8	12	11	8
Black incised	21	36	18	18	93	4	5	7	9	6
Plain buff ware	34	45	30	48	157	6	7	12	23	10
Buff incised	10	12	2		24	2	2	1	x	2
Polished buff ware	85	80			165	16	12	x	x	10
Plain red ware	30	52	11	55	148	6	8	5	26	9
Middle Gila polychrome		2	1		3	x	x	x	x	x
Black-on-red	4	1			5	1	x	x	x	x
(Central Rio Grande)										
	519	673	251	206	1,649	100	100	100	100	100

The foregoing data show:

- (1) That all of the principal pottery types were known at this site.
- (2) That all types had been in use contemporaneously for an unknown period of time.
- (3) That a decline in the polychrome red-and-black-on-buff is indicated in the lower strata.
- (4) That a small increase in the red-and-black-on-white-slip is indicated in the lower strata.
- (5) That the black wares show an increase in the lower strata.
- (6) That the plain buff ware shows an increase in the lower strata.
- (7) That the Middle Gila polychrome ware was contemporaneous with Chihuahua wares.
- (8) That Central Rio Grande black-on-red ware was contemporaneous with the later phase of the Chihuahua culture.

RAMOS

Ramos is located 14 miles west of Corralitos near natural springs. A study of pottery and archaeological objects of this locality was made in the spring of 1928 at the Peabody Museum, Harvard University. During the summer of the same year collections in Chihuahua were studied. Substantial evidence was afforded that the pottery types, shapes, decoration, and technique were in close agreement with those of sites along the Rio Casas Grandes, but vessels of very fine texture and finish such as those of Old Casas Grandes and San Diego as well as plumed serpent painted designs were lacking. Effigies exhibited a greater variety of forms than those of other sites.

NEWMAN'S RANCH, NEW MEXICO

Newman's ranch is situated 35 miles northeast of El Paso, Texas. A random selection of surface sherds picked up in the vicinity of exposed adobe ruins yielded:

TABLE 6. SURFACE SHERDS FROM NEWMAN'S RANCH, NEW MEXICO

<i>Pottery types</i>	<i>No. sherds</i>	<i>Percent</i>
Black-on-white on interior of large bowls	17	33
Red-on-crane (Mimbres)	5	10
Black-on-red (Central Rio Grande)	6	12
Black-on-white on exterior of ollas	10	20
Polychrome red-and-black-on-buff, coarse execution (Chihuahua)	5	10
Red incised (Chihuahua)	8	15
	51	100

DRY LAKE, NEW MEXICO

Dry lake is situated 50 miles northeast of El Paso, Texas. A random selection of surface sherds picked up in the vicinity of exposed adobe ruins yielded:

TABLE 7. SURFACE SHERDS FROM DRY LAKE, NEW MEXICO

<i>Pottery types</i>	<i>No. sherds</i>	<i>Percent</i>
Black-on-white on interior of large bowls	3	6
Red-on-orange (Mimbres)	3	6
Black-on-red (Central Rio Grande)	7	14
Black-on-white on exterior of ollas	3	6
Plain-polished-black-exterior, buff-interior	4	8

Polychrome red-and-black-on-buff, coarse execution (Chihuahua)	26	54
Corrugated ware	3	6
	—	—
	49	100

BABICORA

A break of 50 miles intervenes between Pierson, the site of the southernmost valley mounds, and the northernmost ruins in the Babicora district. The latter begin at Las Varas and extend southward intermittently for an unknown distance. They are smaller than the mounds in the north.

During the summers of 1928 and 1929 three mounds were entirely excavated by myself and assistants and four others were partially excavated. Significant results of this work were found in mound no. 3 (see fig. 3).

Mound no. 3 lies 1 mile south of Las Varas. This proved to be a six room structure having two well-defined floors. The upper floor had been plastered smooth and portions of it were blackened from fires. The lower ranged from 14 to 20 inches below, varying in different rooms. The hardened surface, a fireplace, and the positions of the walls identified the older floor. Broken pottery was found in three of the rooms of the lower floor as well as in three of the upper.

TABLE 8. SHERDS FROM MOUND NO. 3, BABICORA DISTRICT

<i>Upper Floors</i>		<i>No. sherds</i>	<i>Percent</i>
<i>Pottery types</i>	<i>Decoration</i>		
Polychrome red-and-black-on-buff	Thick lines, triangles, scrolls	14	20
Red-on-black	Lines coarsely executed	9	13
Polished red ware	(Good finish)	10	14
Polished black ware	(Fair finish)	8	11
Plain buff ware		26	37
Corrugated		4	5
		—	—
		71	100
<i>Lower Floors</i>		<i>No. sherds</i>	<i>Percent</i>
<i>Pottery types</i>	<i>Decoration</i>		
Red-on-black	Thick lines only	3	8
Polished red ware	(Good finish)	6	17
Polished black ware	(Fair finish)	6	17
Plain buff ware		19	53
Corrugated		2	5
		—	—
		36	100

The above data indicate that there were two successive occupancies of the house, and that the later occupants were those who produced the polychrome red-and-black-on-buff ware, since none of this kind of pottery occurred on lower floors.

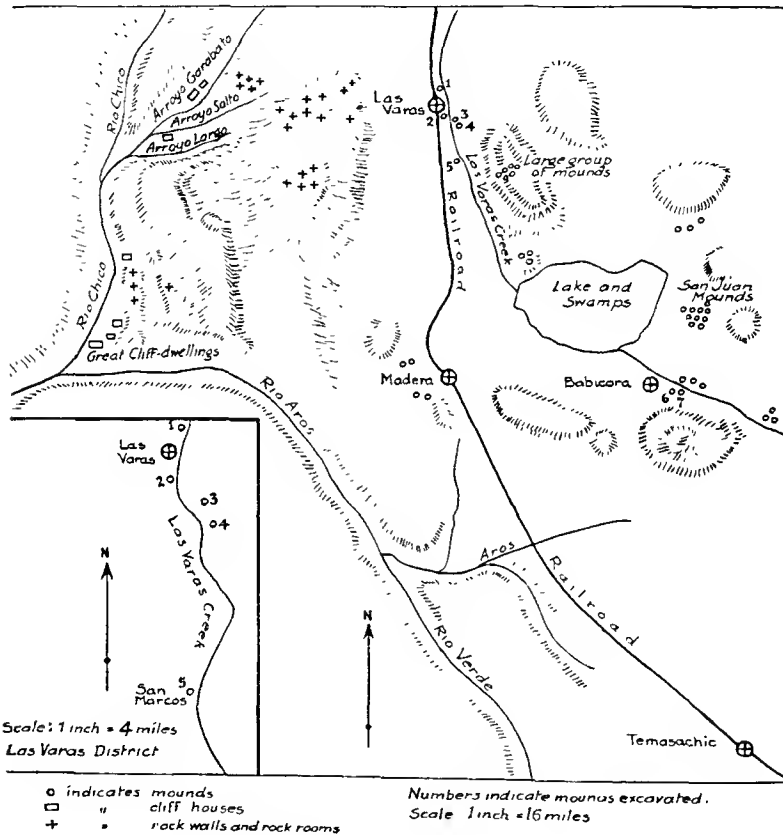


FIG. 3 Babicora district.

Under a room of the upper floor a burial was found. The top of the burial was only 2 inches beneath the floor surface. Ordinary burials are 2 feet or more from floor surface to skull. This indicates that the later inhabitants of the house had difficulty in penetrating the hardened lower surface; hence, a burial of minimum depth became necessary.

In mound no. 2 two less well-defined floors were in evidence with skeletal remains between them. Pottery types on upper and lower floors agreed with

those found on the corresponding levels in mound no. 3 except that black-on-red sherds occurred on upper floors in addition to those listed.

OTHER BABICORA SITES

At San Marcos, 5 miles south of Las Varas, excavation of five rooms in a large mound yielded all the types of pottery found in mound no. 3 with the addition of black-on-red, red ware and black ware in incised technique, and red-and-black-on-white-slip ware.

Five whole ollas placed with burials beneath the floors were obtained at this site:

TABLE 9. VESSELS OBTAINED FROM THE SAN MARCOS MOUND, BABICORA DISTRICT

<i>Pottery types</i>	<i>Shapes</i>	<i>Decoration</i>
Polychrome, red-and-black-on-buff	Olla, flaring rim, thick walls, rounded body.	Parallel, alternating, wide lines, poor execution.
Black-on-red	Olla, straight rim, rounded body, lug handles at rim.	Black triangles in large diamond-shaped figure, good polish, lines thick and poorly executed.
Polished red ware	Olla, straight rim, lug handles, rounded body.	Fair polish.
Red incised	Olla, small flare to rim, lug handles, rounded body.	Parallel rows of holes gauged with end of stick.
Polished black ware	Bowl.	Fair polish.

Elsewhere on Babicora plains mounds were excavated which yielded pottery types in general agreement with those already outlined. Human and animal head effigies in the same style as those of San Diego were found.

Although the pottery types of Babicora plains are undoubtedly the same as those of Casas Grandes valley, the nature and execution of designs and the technique exhibited in the shaping of vessels are inferior to those of the north. Designs characteristic of valley sites, such as painted parrot heads, single spirals, and fine-line paneling, are absent. The leaf-like element (p. 349) occurs rarely. In place of these, interlocked triangles, three-prong, and large step-figures predominate. Some of the best decorative work appears in the black-on-polished-red. On the other hand, the polished red and polished black ware appear to have been of a quality nearly equal to that of the valley points. Incised red ware and black ware were principal pottery types as proved by the abundance of surface sherds.

TEMOSACHIC

Temosachic is situated about 60 miles south of Las Varas. A study of pottery from this locality was made at the Southwest Museum, Los Angeles, from which collection the following data were obtained:

TABLE 10. VESSELS FROM TEMOSACHIC IN THE SOUTHWEST MUSEUM

<i>Pottery types</i>	<i>Shapes</i>	<i>Decoration</i>
Polychrome red-and-black-on-buff ⁹	Human and animal effigies, ollas	Panel and typical Casas Grandes valley designs.
Black-on-red	Small ollas	Geometric designs typical of Casas Grandes valley black-on-red.
Polished red ware	Small ollas	
Red incised	Small ollas	Horizontal and diagonal incisions.
Polished black ware ¹⁰	Small ollas	

SUMMARY OF POTTERY TYPES

In the foregoing analysis an attempt has been made to locate the extent of this culture from the distribution of pottery types. The sites investigated in southeastern New Mexico are marginal and evidently represent the junction of three archaeological areas: those of Casas Grandes, the Mimbres, and the Central Rio Grande. Bandelier states that there are mounds at Janos and Ascension,¹¹ but I have seen no pottery from those ruins.

An examination of the data shows agreement in types, shapes, and designs of the pottery of Casas Grandes valley sites. Comparison of unbroken decorated vessels shows a high degree of similarity in shape, design, and technique even though they are from different localities. The same may be said of shapes and technique in undecorated ware. Consequently evidence regarding the uniformity of pottery in the valley centers is reasonably conclusive.

As mentioned already, the types of pottery of Babicora plains correspond with those of Casas Grandes valley, and effigy vessels of the same style as those found at valley sites are present. Nevertheless the differences in olla shapes and in the nature and finishing quality of decorative designs on the polychrome ware differentiates the Babicora culture from that on the Rio Casas Grandes.

⁹ The specimens studied were all whole vessels. The quality of workmanship in both shapes and designs was superior to that of Babicora wares.

¹⁰ The number of vessels was small, therefore no percentages are given.

¹¹ Bandelier, 536.

According to Mr. Amsden the culture represented in the Babicora district is older than that to the north.¹² This, then, may account to some extent for the difference in the polychrome type. Moreover, its geographical position, without doubt, would to some extent prevent an influx of traits from Casas Grandes valley, hence local patterns persisted.

The distribution of the culture and relative homogeneity of pottery types have thus been determined both in the north and south. The marked differentiation of wares from those of contiguous areas, more specifically from subareas of the North American Southwest, warrants us in defining this as a culture area whose nucleus was Casas Grandes, with San Diego and Ramos as important centers. The extension of the area into the Babicora region can be made only by recognizing certain cultural differences.

Since the pottery from the known sites of the Casas Grandes valley is homogeneous in form, technique, and design, museum collections of unknown provenience were examined. These collections have a certain value in that, according to Mexicans who had secured such material from the mounds and sold it, they were all obtained within a radius of thirty miles from the ruins of Casas Grandes.

The analytic method previously outlined was applied to all museum collections of pottery of this culture henceforth designated as the Casas Grandes culture. Traits common to the latter area and those contiguous to it were analyzed and relations between them determined. The determination of cultural relations to the south was made by a comparison of analogous traits existing in Chihuahua and the nearest centers in Mexico. These centers are, Chalchihuites in northern Zacatecas, La Quemada and Totoate in northern Jalisco, and they range from 400 to 600 miles in distance from Casas Grandes.

EXPOSITION AND INTERPRETATION OF THE TYPOLOGY OF OBJECTS

A detailed description of the various features of Casas Grandes pottery has been published by Dr. Kidder.¹³ The stylistic peculiarities of the pottery will be treated in detail here for they furnish clues to aspects of the problem which were formerly obscure. The following sections deal with pottery shapes, designs, and technique, each of which has importance in the elucidation of the general problem.

SHAPES OF POTTERY AND OTHER OBJECTS

Effigy Vessels

Table 11 shows the type frequencies of vessel shapes. The data were

¹² Amsden, 48.

¹³ Kidder, I, 253.

taken from the Chihuahua collection of the State Museum of New Mexico, Santa Fe, New Mexico.

TABLE 11. VESSEL SHAPES IN THE STATE MUSEUM OF NEW MEXICO'S CHIHUAHUA COLLECTION

<i>Pottery types</i>	<i>Number of Specimens</i>				<i>Percentages</i>			
	<i>Effigies</i>	<i>Ollas</i>	<i>Bowls</i>	<i>Miscellaneous</i>	<i>Effigies</i>	<i>Ollas</i>	<i>Bowls</i>	<i>Miscellaneous</i>
Fine polychrome ¹⁴	14	64	14	16	4	19	4	5
Coarse polychrome ¹⁵	27	84	13		8	25	4	
Black-on-red	1	11				3		
Polished red ware	6	10	3	5	2	3	1	1
Red incised		10				3		
Polished black ware		25	28	5		8	8	1
Plain buff ware	3				1			
	—	—	—	—	—	—	—	—
	51	204	58	26 (=339)	15	61	17	7 (=100)

TABLE 12. ANALYSIS OF FIGURES ON EFFIGIES (noted in table 11)

<i>Pottery types</i>	<i>Number of Specimens</i>				<i>Percentages</i>			
	<i>Human</i>	<i>Animal</i>	<i>Bird</i>	<i>Fish</i>	<i>Human</i>	<i>Animal</i>	<i>Bird</i>	<i>Fish</i>
Fine polychrome	6	3	5		12	6	10	
Coarse polychrome	9	7	7	4	16	14	14	8
Black-on-red	1				2			
Polished red ware	2	2		2	4	4		4
Plain buff ware	3				6			
	—	—	—	—	—	—	—	—
	21	12	12	6 (=51)	40	24	24	12 (=100)

Effigy vessels are generally foreign to the pottery of the Southwest. Isolated specimens and a small number of effigy sherds are known from the San Juan and central Gila areas.

There are four types of human effigies: (1) True effigies in which the entire form of the vessel portrays human figures, often in a sitting position

¹⁴ Fine polychrome ware includes red-and-black-on-buff and vessels of related types, characterized by fine line work and superior finish.

¹⁵ Coarse polychrome ware includes red-and-black-on-light-colored-slip and vessels of related types, characterized by generally coarse execution of designs and relatively inferior finish.

(fig. 4*a*, U.S.N.M.);¹⁶ (2) those in which one side of the neck is extended above the aperture to represent a human head (fig. 4*b*, S.M.N.M.); (3) those with human faces or features modeled on the sides of vessels (fig. 4*c*, A.M.N.H.); (4) jars with body-parts protruding from the sides (fig. 4*d*, U.S.N.M.).

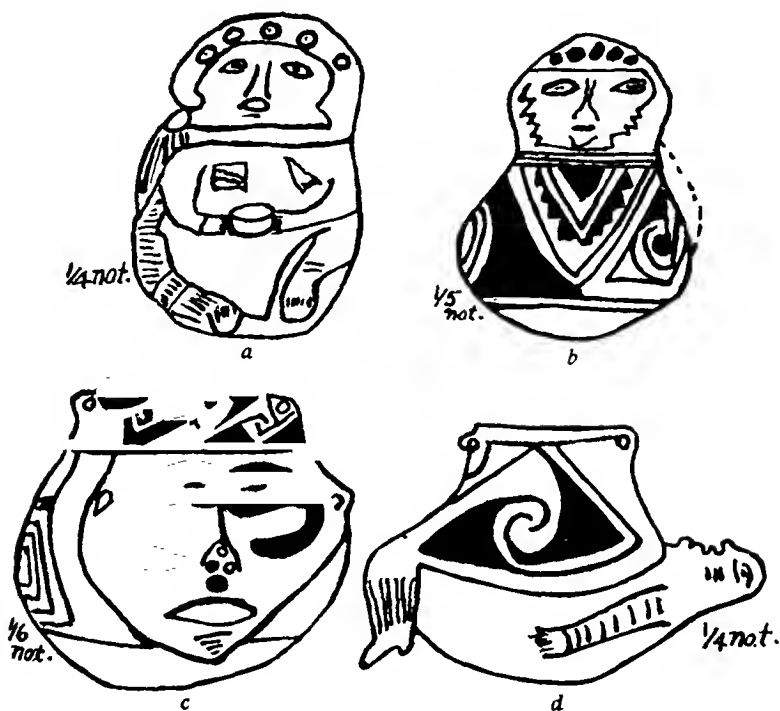


FIG. 4. Effigy vessels. *a*, figure modeled on entire vessel, *b*, face modeled on one side of vessel neck, which is extended above opening; *c*, face modeled on sides of vessel; *d*, body parts protruding from sides of vessel.

The type frequencies are as follows:

¹⁶ This means that fig. 4*a* in this paper was copied from a specimen in the United States National Museum. Abbreviations for the other museums from which specimen data were obtained are: American Museum of Natural History, A.M.N.H.; Peabody Museum, Harvard; P.M.; State Museum of New Mexico, S.M.N.M.

TABLE 13. TYPES OF HUMAN EFFIGIES IN THE STATE MUSEUM OF NEW MEXICO'S CHIHUAHUA COLLECTION

<i>Pottery types</i>	<i>Number of Specimens</i>				<i>Percentages</i>			
	<i>True effigies</i>	<i>Raised neck</i>	<i>Faces on sides</i>	<i>Protruding parts</i>	<i>True effigies</i>	<i>Raised neck</i>	<i>Faces on sides</i>	<i>Protruding parts</i>
Fine polychrome	1	3	1	1	5	14	5	5
Coarse polychrome	1	3	3	2	5	14	14	9
Black-on-red		1				5		
Polished red ware		1		1		5		5
Plain buff ware		2		1		9		5
	—	—	—	—	—	—	—	—
	2	10	4	5 (= 21)	10	47	19	24 (= 100)

Effigy vessels appear in the middle (or Toltec) period of the Valley of Mexico.¹⁷ They have a wide distribution in certain Mexican cultures, the chronological relationships of which have not yet been fully determined. In collections from Tepic, Nayarit, and northern Jalisco, which are in the Museo Nacional, Mexico City, and in the American Museum of Natural History, effigies and figurines of clay representing men and women in sitting postures are numerous. Some take the form of a person holding a bowl, others represent women holding infants. Effigies of the Casas Grandes culture having these shapes are in the United States National Museum, the Heye Museum, and the Royal Ontario Museum. Although the specimens from Mexico farther south have a finer finish and detail, the relationships of form and technique to Casas Grandes specimens are very marked.

Effigies of the second type have their origin in the Chapala-Guadalajara district of northern Jalisco. Specimens from this region are exhibited in the Field Museum, and the Museo Nacional, Mexico City. They are of buff ware having a red slip, with the neck of the vessel extended and shaped to represent a human face. The eyes are buttons of clay, the nose is prominent and well-defined, the mouth a slit. A number of these bear a distinct likeness both in general technique and facial portrayal to specimens of the Casas Grandes culture.

Effigies of the third type occur in nearly every subarea of Mexico. Specimens from the Casas Grandes region are similar to Mexican examples in facial features. The nose is prominent, the mouth is well-formed, and often teeth are exposed. The chin is emphatic, and the expression animated.

¹⁷ Seler, *tafel* 67, 70, 77.

Examples of this type from many parts of Mexico are to be seen in the Museo Nacional, Mexico City.

Effigies of the fourth class are shaped in such manner that a small olla represents a reclining figure. The head protrudes from one side of the vessel, the legs and feet from the other. The arms are modeled on the sides of the vessel. The head features and limbs are usually well formed. The attitude of these figures is very unusual in ceramic arts. Similar effigies are found elsewhere in very small numbers only in the Mississippi valley where they must have been introduced in some way from central Mexico. Effigies of this type apparently represent concepts of Chacmool, the reclining god of central Mexico. These concepts were brought into the Casas Grandes region and there interpreted by the native artists. Examples of Chacmool carved in stone have been found at Chichen Itza, at Cempoalan in Vera Cruz, at Texcoco in the Valley of Mexico, and at Jhuatzio in Michoacan.¹⁸



FIG. 5. Macaw head effigy vessel

Animals, bird, and fish bodies occur in the four types of effigies mentioned above. True effigies are represented by the mountain goat with legs upon which the whole vessel stands. An opening in the back of the animal permits use of the cavity within. Heads are so well executed that there is no doubt as to what the figure is intended to represent. The badger, macaw, and owl are common subjects for effigies of the raised neck type. The motives for vessels of the modeled-side kind are often coiled snakes, frogs, and lizards raised in relief. All of the faunal varieties portrayed in effigies inhabit this region including the macaw, which is a native of the Sierra Madre (fig. 5, U.S.N.M.).

Miscellaneous Vessels and Objects

Besides effigies, a variety of miscellaneous shapes is found in the major-

¹⁸ Spinden, II.

ity of Casas Grandes collections. Raised bowls with flat bases (fig. 6*a*, U.S. N.M.) occur in small percentage. They are usually of polished red or polished black ware and agree in shape with Mexican vessels of a similar class.

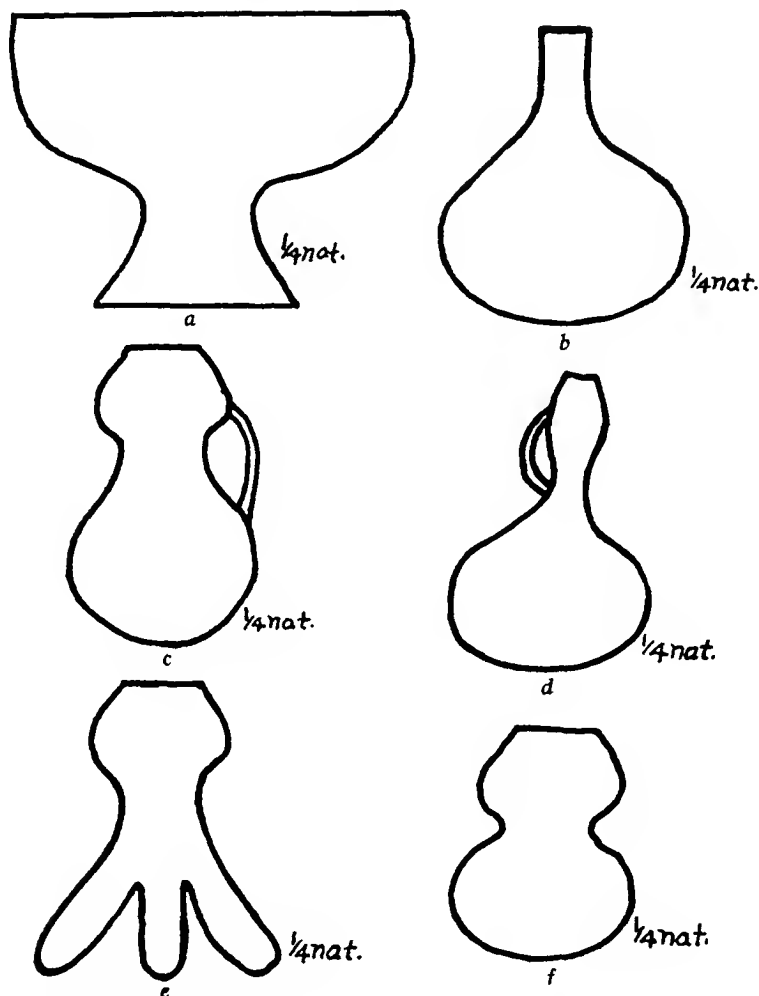


FIG. 6. Miscellaneous vessels and objects. *a*, raised bowl with flat base; *b*, small finely-made bottle; *c*, *f*, double-necked vessels; *d*, bottle; *e*, three-legged, cup-like object.

Vessels of this shape are not found in the Southwest. In fine polychrome ware there are small finely-made bottles (fig. 6*b*, U.S.N.M.), with or without handles; in polished black ware, three-legged cup-like objects (fig. 6*e*,

S.M.N.M.); and in polished red ware, two ollas joined by a handle and a connection at the bases, double-necked vessels (fig. 6*c, f*, S.M.N.M.), and bottles (fig. 6*d*, S.M.N.M.). Small bottles are apparently of great rarity in the Southwest,¹⁹ but are frequently encountered in districts of central Mexico.

Small figurines in pottery and carved stone occur rarely. There are examples of both in the collection of Mrs. E. C. Houghton of El Paso, Texas. They take the form of human heads, 1 to 2 inches in height, and are well executed. Spindle whorls are of polished black ware with incised decoration or of plain buff ware.

The typical olla (fig. 7*a*) is small, not over 8 inches in height, with straight sloping sides and very little extension of the neck, widest diameter two thirds of the distance from the orifice. The polished black and red ware jars (fig. 7*b, c*) are of somewhat similar shape, but smaller and squattier,

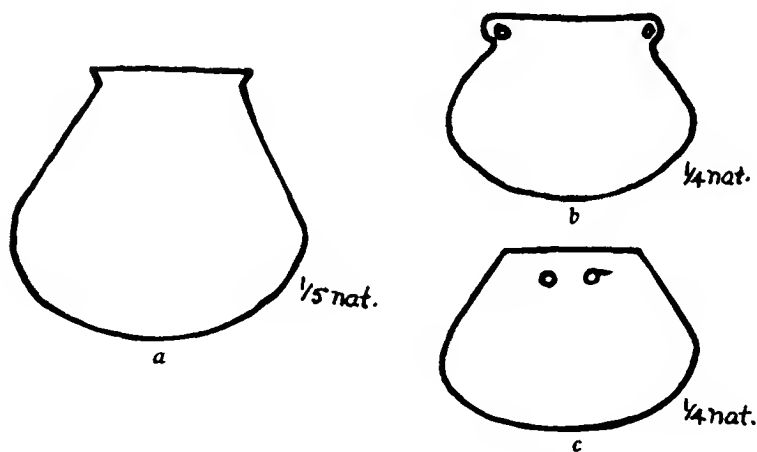


FIG. 7. Vessel shapes. *a*, typical olla; *b, c*, jars.

and they often have lug handles. Probably a local pattern has persisted here with some preference for the small, polished black and red ware of the Mexican forms rather than for the bulging Southwestern styles. The stratigraphic data obtained at Corralitos confirm to some extent the point that local olla shapes had been of long standing, since pottery sherds found in the lowest stratum were identified with types of whole vessels having the above-mentioned shapes.

Carved stone images are relatively commonplace in the Casas Grandes

¹⁹ Kidder, I, 255.

culture. They range from 1 to 2 feet in height and are of red or gray sandstone. The features consisting of eyes, mouth, nose, and ears, with a semblance of shoulders and arms, are in some specimens fairly executed, in others very crude, in still others almost obliterated with wear. Several have crowns or headdresses (P.M.). Such figures occur also in certain parts of the Southwest. An example without headdress from the Middle Gila region is figured by Fewkes.²⁰

Metates with three or four legs occur in the vicinity of the great ruins at Casas Grandes. Elsewhere in the region they are without legs as in the Southwest. Legged metates suggest the Mexican type.

DECORATIVE DESIGNS ON POTTERY

Design Elements

Although in execution of designs and general technique Casas Grandes fine polychrome pottery probably surpasses many of the wares of the Southwest the elements used are very few, only nine design elements occurring on



FIG. 8. Design elements *a*, key designs, *b*, interlocked spirals, *c*, step designs; *d*, triangles having one side extended and bent; *e*, triangles, *f*, single spiral, *g*, leaf element, *h*, circle in negative drawing with dot inside; *i*, dot within a small square

approximately 80 percent of the decorated vessels. (See fig. 8.) These are key designs, interlocked spirals, step designs, triangles having one side extended and bent, triangles, single spiral, leaf element, circle in negative drawing with dot inside, and dot within a small square.

²⁰ Fewkes, I, pl. 47.

Of these, the first four are undoubtedly Southwestern designs. The first three centered in the San Juan area, and the fourth is general throughout the Southwest with its center of dispersion undetermined. The simplicity of the triangle element prevents certainty of its origin. The single spiral and the leaf-like element will be dealt with separately in following sections. In the Southwest the circle in negative painting having a black dot inside centered in the San Juan region. Although it appears but rarely on pottery of intervening subareas, the prevalence of other San Juan designs on Casas Grandes pottery leads to the supposition that it also may represent an intrusion from the north. However, this design was of general occurrence on the pottery of Mexico from archaic times on through the several culture epochs,²¹ and continues to be a prominent figure in the decoration of the modern wares. The dot within a small square in the ground-color of the vessel is of general distribution over the Southwest, therefore this element may be regarded as having come from the north into the Casas Grandes culture.

Local Composition of Southwestern Design Elements

The principle of opposition in geometric decorative elements is a conspicuous feature of Casas Grandes pottery, without doubt disseminated from the Southwest where it is universal. Traits such as spirals having no opposing spirals to interlock with them, or step elements opposed to each other but drawn on the same basing line, are rarely to be seen on Southwestern pottery. On Casas Grandes pottery both traits occur as modifications of the interlocked-spiral and opposed-step designs of the Southwest. An examination into the methods of line-paneling is required in order to determine the governing processes here.

Figure 9 represents the decoration on one-half of a Casas Grandes olla (E. C. Houghton collection, El Paso, Texas). The other half is the same except that the color scheme is reversed in the elements.

It will be observed that the opposed elements lie on different basing lines and that there are two sets of four-each introductory positions of lines functioning as their stems. In the drawing these lines are given the same numbers as the elements of which they are the stems. Thus, line no. 1 at the right top is the stem of element no. 1 top, line no. 2 right top the stem of element no. 2 left, line no. 3 upper center the stem of element no. 3 top, line no. 4 the stem of element no. 4 left, etc. There are, therefore, eight stem lines and eight elements. The vertical columns on the extreme left and right are decorative devices separating the two paneled fields of the vessel. They are narrow, permitting ample space for the eight stem lines.

²¹ Franz Boas and Manuel Gamio, pls. 27, 28, 47, 58.

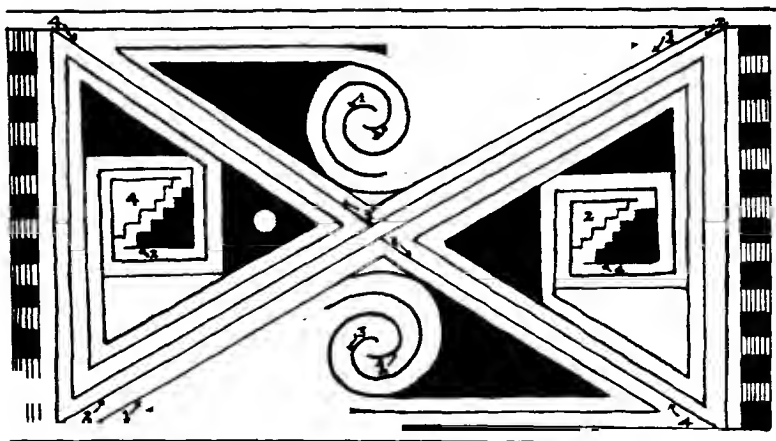


FIG. 9. Decoration on one-half of a Casas Grandes olla, E. C. Houghton collection.

Figure 10 represents the decoration on one-half of another olla (S.M.N. M.), the opposite half of which is the same except that the color scheme is reversed in the elements.

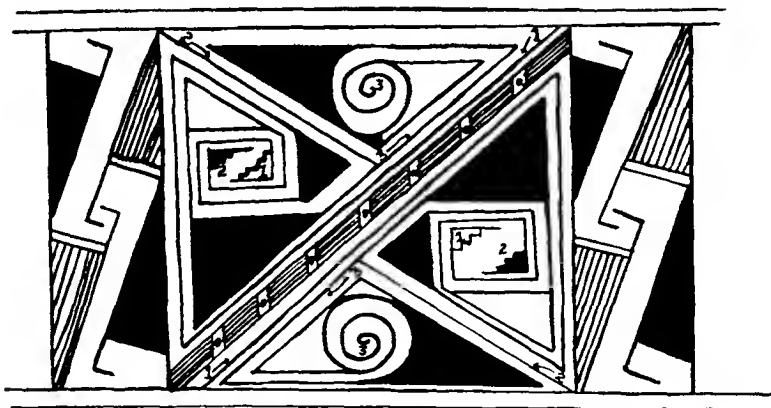


FIG. 10. Decoration on one-half of another Casas Grandes olla in the State Museum of New Mexico.

In this figure the vertical decorative columns at the extreme right and left separating the two panels are much wider than those in figure 9. In addition there is a decorative device running diagonally through the center

of the paneled field. This device occupies considerable space and precludes the introduction of more than three functional stem lines on each side of the diagonal, or a total of six. Thus, there are six introductory lines which must serve as stems for all of the decorative elements in the field. This gave rise to a composition of the design elements, since to execute double spirals, two additional stem lines would have to be introduced for which there was no space. This resulted in the single spiral, formed by a lowering of one of the opposed triangles to the basing line of the other triangle, and a continuation and extension of their curved inner sides. This trait is foreign to Southwestern decoration, but occurs frequently on Casas Grandes fine polychrome ware.²²

In like manner it can be shown that opposed-step designs based on one stem (fig. 11) instead of two, as in the Southwest, follow processes similar to those outlined for the single spiral.

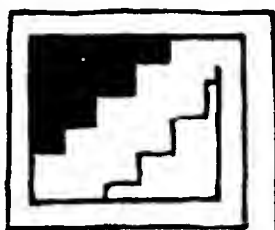


FIG. 11. The opposed-step design based on one stem.

In general, then, where there has been a narrowing or restriction of the paneled field or the decorative conditions were such that one stem line could not be introduced for each separate element there has been a composition of designs. The single spiral and opposed elements on the same stem are, therefore, compositions of borrowed traits developed locally through amplification of artistic motives.

The Leaf Element

Characteristic of the pottery of the Casas Grandes area is the leaf design, consisting of a black, or occasionally red, leaf-shaped figure on one side of a stalk. The leaf is usually accompanied by a line or hook which extends from behind and then makes a broad curve in front of the leaf-face (fig. 12).

²² All-over double spiral designs in this type of pottery are rare, but occur frequently on the coarse polychrome ware.

Decoration on the pottery of Mexico farther south exhibits no design similar to the leaf element. Furthermore, no like design is found on South-

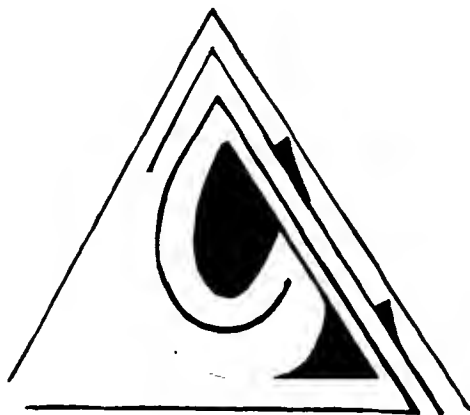


FIG. 12. The leaf design.

western pottery. However, certain Southwestern interlocked spirals bear a superficial likeness to it. The best examples of such spirals are on the interior of black-on-white bowls from Aztec ruin, New Mexico (fig. 13, A.M.



FIG. 13. The spiral design.

N.H.). An examination of the leaf design on all types of Casas Grandes pottery shows that in many cases where the execution of design was inferior and line paneling was less definite, the leaf-and-hook design partakes in high degree of the characteristics of the Southwestern interlocked spirals just mentioned.

It can easily be seen how the principle of opposition embodied in the Southwestern spirals may give rise to such a design as the leaf-and-hook when the influence of precise paneling serves to incorporate it into the specific areal pattern.

Therefore the conclusion is, that the leaf-and-hook design had its origin in (opposed) elements disseminated from the Southwest. It was modified locally through the influence of paneling and possibly symbolic association and it became an element which is duplicated in no part of the region to the north except in the Mimbres district, contiguous to Casas Grandes, where it was certainly an intrusion from the latter region.

The leaf-and-hook design occurs on about 34 percent of the Casas Grandes fine polychrome ollas as an independent element, as contrasted to its use in a functional capacity in some design combinations.

In the Mimbres area of the Southwest, where the pottery consisted of large bowls with realistic and geometric figures painted on the inside, the leaf-and-hook design in its fully developed form is present to the extent

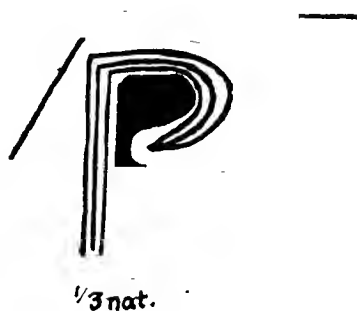


FIG. 14 The Mimbres leaf-and-hook design.

of $3\frac{1}{4}$ of 1 percent. About four hundred Mimbres bowls were examined and three specimens possessing this element, conventionalized in the art pattern of the area, were observed (fig. 14, S.M.N.M.).

This indicates that contacts were established between the two areas and that the fine polychrome phase of the Casas Grandes culture was contemporaneous with that phase of the Mimbres culture which produced the Casas Grandes designs on the interior of large bowls. It also indicates that the influence in the production of the leaf element was directed from Casas Grandes to the Mimbres area.

The Upper Gila Spiral

A decorative design peculiar to the Upper Gila area, which is contiguous to the Mimbres region on the north, is found as an intrusive element on Casas Grandes pottery. It occurs on the black-on-white ware of the later full Pueblo period and its center seems to have been on the Rio Tularosa.

This design is composed of two elements—one in black, the other in hatching. These interlock to form a double spiral. Often there is a rectilinear design in hatching resting upon the upper curve of the hatched element (fig. 15, P. M.).

This combination may be taken as a complex, since its component parts are not generally used as separate elements. It is readily distinguished from any Casas Grandes design. It occurs on that class of Casas Grandes pottery designated in this paper as "coarse polychrome" ware, the classification of which has already been given (see footnote 15). This design complex is present on approximately 2 percent of the Casas Grandes coarse polychrome vessels. These vessels also possess local designs proving that they

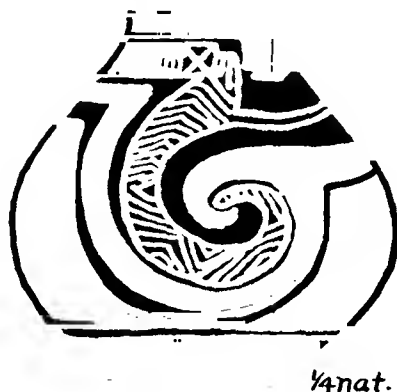


FIG. 15. The Upper Gila spiral.

were not trade ware from the Tularosa but that this decorative complex was an intrusion which the Casas Grandes design painters used in conjunction with their own elements.

The excavations of Hodge near Hawikuh, New Mexico, show indirectly that the Upper Gila culture somewhat antedated that of Casas Grandes.²³ Therefore, the occurrence of the Upper Gila spiral on Casas Grandes coarse polychrome may indicate that this ware represents pottery of an earlier period of the Chihuahua culture. This conclusion is supported to a certain extent by the stratigraphic data obtained at Corralitos where red-and-black-on-white slip ware showed an increasing percentage over the polychrome red-and-black-on-buff types in the lower strata.

²³ Hodge, 31 and following.

Negative Painting, Formal Process

Different methods of negative painting as decoration on pottery were in use in western Mexico, in the Mimbres region of the Southwest, and in the Casas Grandes valley. A method especially common in Jalisco and Michoacan consisted in painting the desired design with wax or some perishable material, after which the entire vessel was covered with a permanent paint. When fired, the wax was consumed leaving the design in the ground color of the jar.²⁴ In the Mimbres region the outline of the figure was painted in black or some other color, making the design appear in white against a dark border. In the Casas Grandes area there were two methods: one in which formal motives in the local art pattern were combined with realistic impression; the other was similar to that used in the Mimbres area. It is

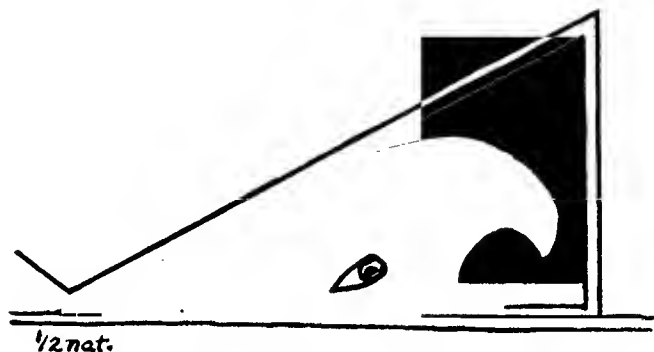


FIG. 16. The negative painting (formal process) design.

with the former that this section is concerned. The design effected by this method was usually painted in triangular spaces between panel lines, out of the central focus of the field (fig. 16, S.M.N.M.).

It will be observed that the construction of the design depends upon the presence of the small leaf element near the base. It is designated in this paper as the "macaw head" design because its outlines resemble, in a general way, profile outlines of the macaw effigy heads (see fig. 5). Also, certain variations of the painted design clearly show this to be the correct interpretation.

Table 14 shows the frequency of the macaw head design in relation to some other features of the pottery. The data were taken from the collection of the State Museum of New Mexico.

²⁴ Seler, 3:95 and following.

TABLE 14. THE MACAW HEAD DESIGN ON VESSELS OF THE STATE MUSEUM OF NEW MEXICO'S CHIHUAHUA COLLECTION

Ware	Vessel shapes	Total vessels of type	Vessels with paneling	Percentage of vessels with paneling	Vessels with macaw in negative painting	Percentage of vessels with macaw
Fine polychrome	Effigies	14	11	12	5	5
Fine polychrome	Ollas	64	45	49	11	12
Fine polychrome	Bowls	14	7	8	2	2
		<u>92</u>	<u>63</u>	<u>69</u>	<u>18</u>	<u>19</u>
Coarse polychrome	Effigies	27				
Coarse polychrome	Ollas	84	26	21		
Coarse polychrome	Bowls	13	2	2		
		<u>124</u>	<u>28</u>	<u>23</u>		

Sixty-nine percent of the fine polychrome vessels are paneled, and 19 percent of the same ware possess the macaw head in negative painting. Turning to the coarse polychrome ware, the figures show that only 23 percent of the specimens are paneled, while the macaw head is entirely absent. Instead of the macaw head in triangular spaces, the leaf design and a section of its hook often occur.



FIG. 17. The leaf design in triangular spaces

The leaf design was used on the coarse polychrome ware rather than one of the other decorative units for the reason that its shape naturally adapted itself to the space within the triangle, whereas the other elements would not fit into it.²⁵ This combination left a vacancy at the apex of the ground color triangle which was inconsistent with the general decorative pattern (fig. 17,

²⁵ It may be objected that the single spiral would fit in, but it may be recalled that the single spiral required two triangles in opposition to each other to execute it. Besides, the single spiral does not occur on coarse polychrome ware.

S.M.N.M.). By the addition of a black dot, a small circle, or an oval in this space, the whole figure assumed the likeness of a living being in the ground color of the field.

In the fine polychrome ware the leaf element in the macaw head design is diminished in size giving a more realistic interpretation to the whole, but the short section of the accompanying hook is not dispensed with. The stratigraphic data obtained at Corralitos and the occurrence of the Upper Gila spiral on coarse polychrome vessels suggest the chronological priority of that ware to the fine polychrome, thereby strengthening the conclusion advanced.

Negative Painting, Outline Process

A second method of negative painting was employed in which the outlines of realistic figures were drawn on a section of the vessel side; details were painted within the outline, and the whole design surrounded by black paint. The subjects are human beings and birds (fig. 18, S.M.N.M.).



FIG. 18. The negative painting (outline process) design.

In the human figures two significant points should be emphasized: first, the process by which they were made; secondly, the concepts embodied in their representation. Concerning the former it may be pointed out that the execution of such ornamentation exhibits a command of the art of outline drawing which must have required a long developmental period. These designs occur only on the fine polychrome ware. One specimen of coarse polychrome ware in the American Museum of Natural History has a positive painting of a human figure with elaborate headdress. This repre-

sentation is related to that in figure 18. With this exception there are no similar designs on Casas Grandes pottery other than the fine polychrome ware.

As to historic possibilities in connection with the Southwest, the human figures and birds in the outline process of negative painting produced by the Mimbres culture were in a style somewhat similar to those on some Casas Grandes vessels. Hence a relationship may have existed between the two cultures. At present it is not possible to determine whether the negative process originated in either of these areas. For in the Jalisco region negative drawing is also highly developed. On the other hand the headdress, appendages of wearing apparel, and skirt in figure 18 bear distinct resemblance to paraphernalia worn by Mexican divinities.²⁶ Although the Mexican drawings are not executed in negative technique, the entire complex shown in the Chihuahua figures strongly suggests mental impressions derived from the South. Furthermore, the negative process of portrayal is foreign to the Southwest. It seems justifiable, therefore, to infer an historical connection with Mexico. The peculiarities in the method of portrayal were doubtless local technical modifications.

The Plumed Serpent

The plumed serpent is depicted on about 2 percent of the fine polychrome ollas of the Casas Grandes culture. Although the various examples exhibit differences in details, the general contour and features are similar (fig. 19, A.M.N.H.). The method of execution was to draw the upper and

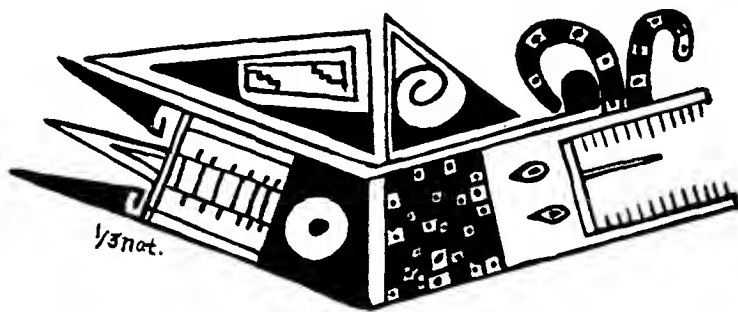


FIG. 19. The plumed serpent design.

lower bounding lines to form the sides of the figure, then, by the addition of decorative elements in common use on the pottery the distinguishing features were produced.

²⁶ T. W. Danzel, vol. 11, pls. 38, 41. Seler, vol. 5, pl. 11.

Thus, the plumes of the serpent are represented by a form which the hook accompanying the leaf element often takes. The jaws are portrayed by the comb device often seen on polychrome ware, the tongue by straight lines, the tail by triangles with bent sides. The eyes are of the same style as those of the painted macaw heads. The intermediate space is filled in with elements used on the decorated pottery. A zigzag direction of the body conforms to the pattern of certain pottery decoration where wide bands meander around the vessel.

Other painted realistic designs are not compositions of geometric elements but rather actual reproductions of the object. In animal effigies no distortions by unnatural additions to figures occur which might point to imaginative faculties on the part of the Casas Grandes artists.

The characteristics of these portrayals are strikingly in agreement with those of the plumed serpents of Mexico. This fact, and the integration of separate geometric elements into a rational whole, show almost indisputable evidence of affiliations with the South. Apparently, concepts disseminated from there were received into the Chihuahua culture and incorporated into the areal pattern.

This is an excellent example of the elaboration of geometric into realistic forms due to the contact of two cultures. On the other hand, the treatment of the plumed serpent may be a trait which persisted from an older art style of the area.

POTTERY TECHNIQUE

A Peculiar Technique in Red Ware

On some of the polished red ware vessels a certain method of decoration was employed in which pairs of deeply incised lines meander in a narrow band just above the greatest diameter. Between the pairs of lines a thick coating of black or red pigment was laid and afterward polished. The surrounding surfaces were left rough. This technique takes two forms: first, the lines remain parallel and zigzag around the vessel describing symmetrical courses, secondly, the lines remain parallel for a short distance, then expand to form geometric designs (fig. 20, S.M.N.M.).

Decoration by ordinary incised lines runs over the entire upper surfaces of ollas and the lines do not change direction and are not used in composition. Furthermore, black paint is not used with ordinary straight line or puncture incision. However, when black or red paint is used with line incision the two techniques are combined to form a continuous geometric unit.

A similar technique is employed on some of the jars of the Archaic culture of Mexico. Pairs of incised lines are arranged in continuous bands and

geometric figures. The spaces between the incisions are filled with black or red paint and the surrounding surfaces left rough. Sherds from Zacatenco and Ticoman showing this method of decoration are figured in the archaeological album edited by Professor Boas.²⁷ This technique is also to be seen on pottery vessels of the La Quemada-Totoate-Chalchihuites culture of Za-



FIG. 20. Incised lines design

catecas and Jalisco. Examples of such vessels are to be found in the Museo Nacional, Mexico City, and the American Museum of Natural History. According to Spinden, the Jalisco and Zacatecan cultures have certain features which point toward relationship with the late epoch of the Toltec period.²⁸ On the other hand, the decorative technique described above is foreign to the Southwest.

Contrasts in Local and Southwestern Wares

There are significant technical differences in the local pottery types and those of the Southwest. These differences are apparent in the incised wares, the polished red, and the polished black ware.

Incised ware is rare in the Southwest,²⁹ occurring consistently only in the Lower Salt region.³⁰ In the Casas Grandes area incised red ware and black ware are relatively common. The former is generally distributed over the entire region including marginal sites in New Mexico. Incised black ware is found in the Cave valley mounds and at Babicora. At Casas Grandes valley sites few sherds of this technique were observed on the surface, but the excavation at Corralitos indicates an increasing series in the lower strata, which may mean that it was supplanted by other types of pottery in the later period of the culture.

Polished red ware, found within the entire known area, was one of the principal pottery types. The quality and finish of vessels of this class were

²⁷ Boas and Gamio, pls. 39, 40, 41, 50

²⁸ Spinden, II, 183.

²⁹ Holmes, 282.

³⁰ Schmidt, 288.

equally good in the several districts of the area including Babicora plains, Temosachic, and valley points. Polished black ware, comparable to that produced at Santa Clara today, is likewise widespread and of good quality and polish both in the north and the south.

In the Southwest, vessels of red ware having the quality and polish of the Casas Grandes specimens are not abundant. Pottery with polished black surfaces was made on the Middle Gila (Arizona), in the Socorro region of New Mexico, and at Pecos.³¹ Of the examples of this ware, bowls from the Middle Gila region are red outside and polished black within. The Socorro specimens, in the shape of bowls, have a finely corrugated exterior and a polished black interior. At Pecos, pottery of this class was late and probably of historic date.³²

Incision by holes, lines, and geometric figures had a very wide distribution on the pottery of Mexico farther south. It began in the Archaic period and continued through Toltecan and Aztecan times and was one of the characteristic forms of decoration on pottery of the La Quemada-Totoate-Chalchihuites culture of Zacatecas and Jalisco.³³ Polished red ware and black ware in the forms of ollas, effigies, and unusually shaped vessels were common in a large part of Mexico. The former was one of the principal pottery types of the Archaic³⁴ and subsequent Mexican cultures. The latter seems to date from Toltecan times.³⁵ Both types occur at sites in Zacatecas and Jalisco (Field Museum, and A.M.N.H.).

Another significant contrast between Southwestern and local classes of pottery is that black-on-white ware, characteristic of prehistoric cultures in the Southwest, is generally absent throughout the entire area under discussion.

THE MOUNDS

CASAS GRANDES VALLEY

In this region mounds occur along both sides of the river from the northern extension of Casas Grandes valley to Pierson in the south. They average about 200 feet in length and 100 feet in width. They rise gradually from the normal ground surface and reach a height of from 5 to 7 feet. Mounds also occur at sites some distance from the river, as at Ramos and Galeana. In general, mounds are found where water was available, along creek beds or near natural springs.

³¹ M. A. and A. V. Kidder, 337.

³² *Ibid.*, 338.

³³ Boas and Gamio, pls. 38, 39, 54, 59, 62, 65

³⁴ *Ibid.*, pls. 40, 50.

³⁵ Seler, vol. 5, pls. 54, 56, 57.

Bartlett,³⁶ Bandelier,³⁷ Blackiston,³⁸ and Lumholtz,³⁹ pioneer explorers in this region, have described the great ruins at Casas Grandes, making description unnecessary here.

My assistants and myself excavated in three large mounds in the Corralitos district in the summer of 1928. Walls having coatings of plaster were located, rooms exposed, and fireplaces cleaned out. Burials under corner walls were found. Doorways were rectangular in shape and door sills were about 1 foot above floors. In the floors of certain rooms there were small circular depressions having baked clay walls. These were for the reception of round-bottomed pottery vessels. Similar depressions were found at Dry lake, New Mexico, and on Babicora plains.

The walls of the structures were of adobe and averaged 1 foot 4 inches in thickness; their height ranged from a few inches to 6 feet. Sherds were found in all the rooms excavated. Significant features of the excavations at Corralitos were the absence of roof timbers and the presence of quantities of wood ashes in loose earth within the rooms.

Soldiers of the punitive expedition of 1916 against Francisco Villa pilaged nearly all mounds in the Corralitos district in a search for pottery. Because of this fact and because facilities for conducting excavations on mounds of such magnitude were not available, work was abandoned and continued on Babicora plains.

BABICORA PLAINS

The northern part of the Babicora plains is drained by Las Varas creek which flows from the north into a shallow lake some 15 miles south of Las Varas ranch (see fig. 3). Along both sides of this creek there are mounds at irregular intervals. They are smaller than those of Casas Grandes valley ranging from 50 to 120 feet in length. The southern part of the plains is drained by Babicora creek which flows northwestward and empties into the same lake as does Las Varas creek. Mounds occur 8 or 10 miles southeast of the mouth of this stream. Elsewhere there are mounds along old water-courses and at San Juan ten large mounds form a group, giving the impression that a center is represented here. This conclusion seems justified in view of the large number of pottery types and the good quality of workmanship displayed in finds of surface sherds in this vicinity. The map shows sites at which excavations were made on Babicora plains. Some of the results obtained at mounds nos. 2 and 3 have already been given (see pp. 335,

³⁶ Bartlett, vol. 2, chap. 35.

³⁷ Bandelier, 543.

³⁸ Blackiston, I, 5. 142.

³⁹ Lumholtz, 1:87.

336). Since the data for all of the mounds would occupy considerable space, two (numbered 4 and 5 on the map) have been selected to show representative features for this district.

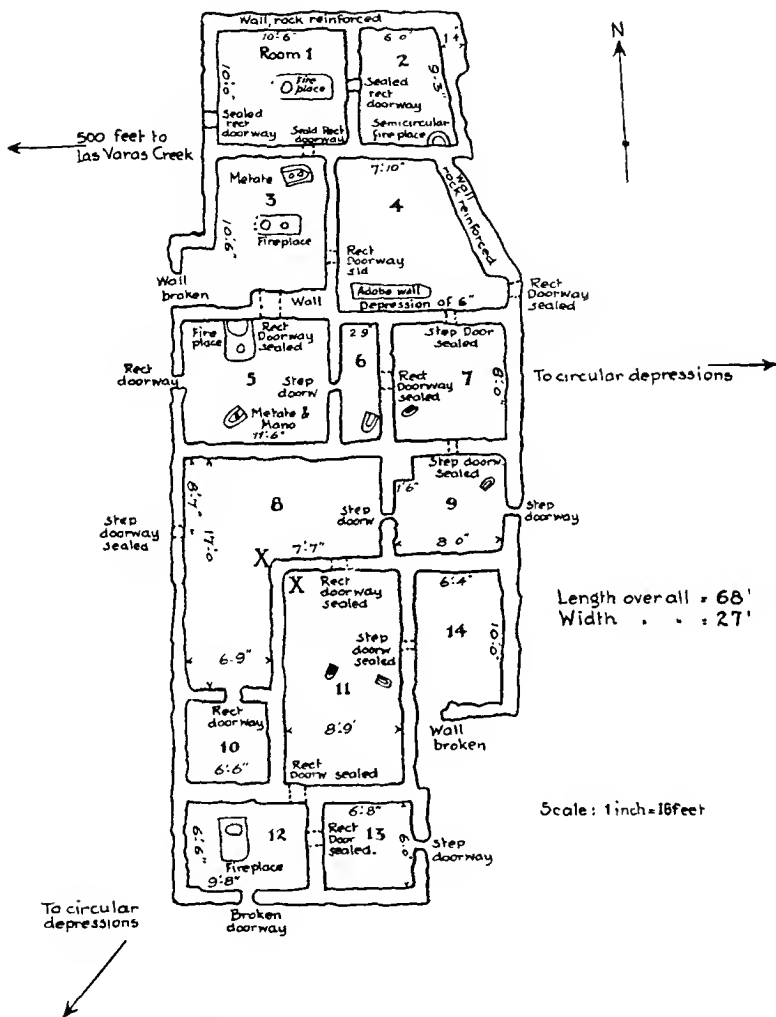


FIG. 21. Floor plan of house, mound no. 4.

Mound No. 4

This mound is situated $1\frac{1}{2}$ miles south of Las Varas ranch house and 500 feet east of Las Varas creek. The original length of the mound at nor-

mal ground surface was 100 feet, its width 50 feet; its height at the center about 5 feet. Four Mexicans were employed in the excavation. Work was begun by trenching in from normal ground surface on three sides of the mound in an endeavor to locate the exterior walls. These were located and followed entirely around the structure (pl. 18*a*). The exterior doorways could then be seen and the positions of the rooms located.

The height of exterior walls averaged 2 feet. North and east walls were reinforced with boulders. The average thickness of the walls was 1 foot. The mound was completely excavated two weeks after starting, records having been kept of the findings from day to day.

The structure within proved to be a fourteen-room dwelling having walls of adobe and well-defined doorways and fireplaces. The more important features are shown in figure 21. Conspicuous peculiarities within the mound house were: (1) the lack of plastering on walls except in room no. 5 where the north and east sides preserved one coating which was blackened on the outer side; (2) the large number of doorways sealed with adobe and rock; (3) the absence of roof beams or timbering of any kind. The maximum wall height was 3 feet 8 inches, with 8 inches of earth above this to the ground surface.

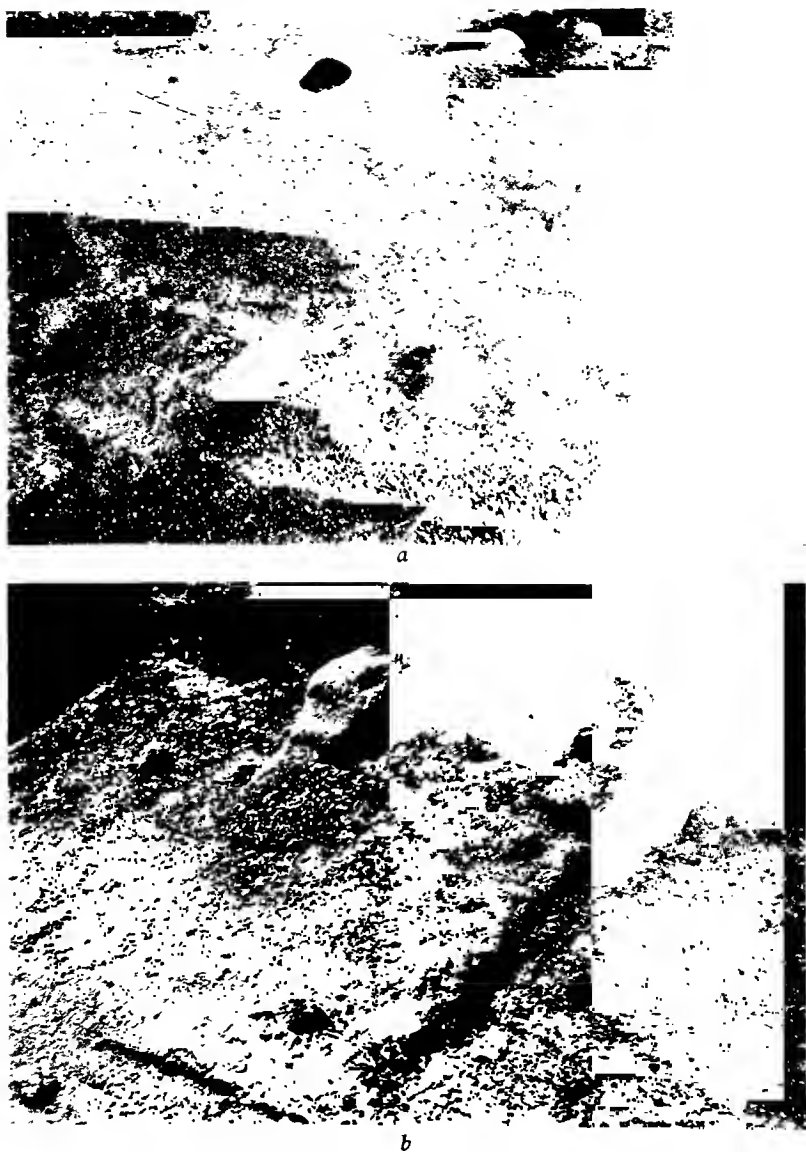
Doorways were of two kinds: (1) rectangular, the sills being from 10 to 18 inches above floors, (2) step-passage type, having a passage of six-inch width at the base and an abrupt widening a foot or so higher (pl. 18*b*). All of the walls were broken off below the lintels. Of the sealed doorways mentioned above, ten were rectangular and four step-passage type. The total number of step-passage doorways, both sealed and open, was eight.

There were three types of fireplaces: (1) Platforms of adobe raised 3 inches above the floors, each platform having a basin-like depression at one end. Often there were other smaller depressions, between the basin and the end of the platform (pl. 19*a*). (2) An adobe platform raised 3 inches above the floor and having a depression. The wall of the room was at one end of the fireplace and adobe stepped-blocks formed the sides of the basin (pl. 19*b*). (3) A semicircular construction of adobe erected against a wall; a depression between the rim and wall contained the fire.⁴⁰ The large depressions of all three types contained wood ashes. It seems clear that the adobe platforms of the first and second types were used to place materials in readiness for cooking, and the small depressions to hold round-bottomed vessels upright. There were five fireplaces in the entire structure, of which three were type no. 1, one type no. 2, and one type no. 3.

⁴⁰ See floor plan, room no. 2.



Mound no. 4. *a*, trench around exterior walls; *b*, step-passage doorway.



Mound no. 4. *a*, fireplace, type no. 1, *b*, fireplace, type no. 2

Floors in rooms nos. 1, 2, 3, 4, 7, 9, were paved with flat stone flags with adobe mortar between them. A layer of adobe $\frac{1}{2}$ inch in thickness covered them.

Table 15 lists the contents of the various rooms.

TABLE 15. ARCHAEOLOGICAL CONTENTS OF THE ROOMS IN MOUND
No. 4, BABICORA DISTRICT

<i>Potsherds</i>	<i>No. of sherds</i>	<i>Other objects</i>
<i>Room 1</i>		
Polychrome red-and-black-on-buff	3	Manos 2
Polished red ware	1	
Polished black ware	3	
Black cooking ware (light red interior)	<u>7</u> (= 14)	
<i>Room 2</i>		
Polychrome red-and-black-on-buff	3	
Plain buff ware	<u>48</u> (= 51)	
<i>Room 3</i>		
Black cooking ware (light red interior)	5	Manos 4 Well-made metate 1 Manos within metate 2
<i>Room 4</i>		
Red-and-black-on-brown (Interlocked spiral and bent triangle designs, coarse execution)	19	Mano 1
Incised red ware	1	Rounded hammerstones 4
Polished black ware	8	
Black cooking ware (light red interior)	<u>12</u> (= 40)	
<i>Room 5</i>		
None		Metate 1 Mano 1
<i>Room 6</i>		
Plain buff ware	5	Metate 1
<i>Room 7⁴¹</i>		
(Upper Floor)		
Plain buff ware	20	Metate 1
Black cooking ware (light red interior)	<u>8</u> (= 28)	Mano inside 1

⁴¹ This room possessed two floors, one 6 inches below the other. The upper floor had evidently been made by adding layers of adobe to the lower. The layers could not be counted because of the large quantity of ashes between them.

TABLE 15 (*Continued*)

<i>Potsherds</i>	<i>No. of sherds</i>	<i>Other objects</i>
		Pestle 1
		Rounded hammerstones 3
		Arrow straightener 1
(Lower Floor)		
Plain buff ware	7	
Black cooking ware (light red interior)	<u>18</u> (=25)	
<i>Room 8</i> ⁴²		
Black-on-red (good quality)	1	Manos 2
Polished red ware	12	Large, round-ended stones (worked) 2
Polished black ware	15	
Plain buff ware	40	
Black cooking ware (light red interior)	45	
Corrugated	<u>5</u> (=118)	
<i>Room 9</i> ⁴³		
No sherds in room		Metate 1
<i>Room 10</i>		
Polychrome red-and-black-on-buff (These pieces all belonged to one olla that had been broken.)	45	
Polished red ware	1	
Black cooking ware (light red interior)	<u>5</u> (=51)	
<i>Room 11</i> ⁴⁴		
Polished red ware	15	Metates 2
Plain buff ware	60	Axe-head 1
Black cooking ware	<u>10</u> (=85)	

⁴² A burial was 2 feet below the walls marked X in the floor plan. Head to east, bones very soft and decomposed. One plain red ware olla, having lug handles at rim, lay 3 inches east of skull.

⁴³ This room had two floors, one 6 inches below the other. The upper floor had been formed by additions of layers of adobe. The exact number of layers could not be ascertained because no distinct dividing line separated them, but the impression was that there were either two or three.

⁴⁴ A burial 2 feet below northwest corner of room (marked X on floor plan). Head to north, bones very soft and decomposed. One polychrome red-and-black-on-buff olla, having coarsely executed diagonal lines with opposed triangles between, was found.

TABLE 15 (*Continued*)

<i>Potsherds</i>	<i>No. of sherds</i>	<i>Other objects</i>
<i>Room 12</i>		
Black-on-red (good quality; designs in interlocked triangles with bent sides).	40	Square-shaped stone 1
Black cooking ware (light red interior)	<u>3</u> (= 43)	
<i>Room 13</i>		
Black cooking ware (light red interior)	8	
<i>Room 14</i>		
Polychrome red-and-black-on-buff (effigy vessel, human facial features moulded on sides of olla).	12	
Black cooking ware (light red interior)	36	
Corrugated	<u>3</u> (= 51)	

Burials occurred in rooms nos. 5, 8, 10, 11, and 12, under corners, without pottery. All of the bones were soft and decomposed.

Forty feet east of the structure there was a circular pit lined with boulders; its diameter was 7 feet and depth 2 feet. Twenty-five feet south of the house there were three smaller pits of similar construction. Their use remains hypothetical. According to ranchers in the vicinity, the Mexican people of this region roast mescal plants in rock-lined pits, and it is possible that the mound people used their pits for a similar purpose.

Mound No. 5

Mound no. 5 is situated at San Marcos, 5 miles south of Las Varas and 200 feet west of Las Varas creek. The central portion of the mound was 7 feet above the normal ground surface. It measured about 120 feet in length by 110 feet in width. Mexicans had trenched into a portion of the mound from ground level exposing walls. The location of the rooms from ground level was thus made convenient and excavation carried on more easily. Five rooms in the central part of the structure were opened. The more important features will be described rather than the details of all the contents.

Walls were of adobe with no reinforcement of boulders; average thickness, 1 foot; maximum height, 6¹/₂ feet. The plaster on the walls was generally well preserved and there were from 10 to 16 layers, all blackened. The thickness of one layer was about 1 millimeter (pl. 20a).

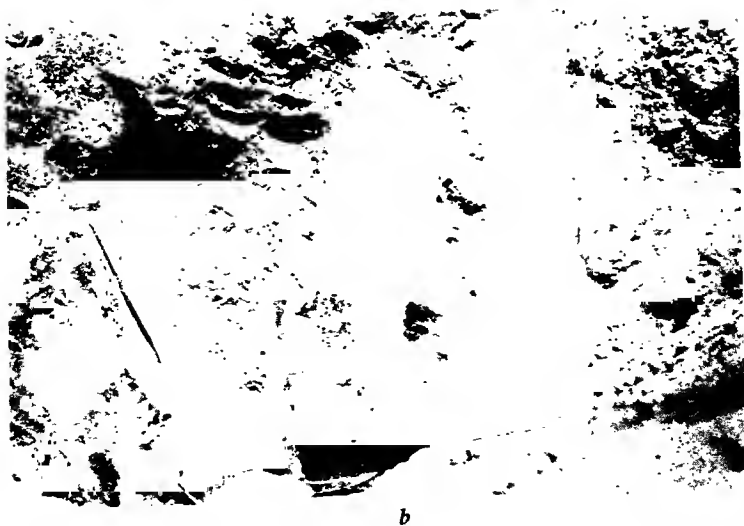
Doorways were of two types: rectangular, and step-passage. Since the walls were preserved to a greater height than in mound no. 4, the door shapes could be observed more closely. The lintels of two rectangular doorways were below wall tops (pl. 20a).⁴⁵ They were composed of three or four flat strips of wood plastered with adobe on their lower surfaces and they extended 4 inches into the walls on either side. No lintels of step-passage doorways were preserved because the walls had been broken below them. In the photograph (pl. 20b) the doorway appears to be intact, but in reality the arch is formed of earth which had fallen from above and become compressed through age. The original wall is broken just below the arch. There were seven doorways in the five central rooms of this mound; two of these were rectangular, five step-passage type.

All rooms contained wood ashes in layers about 1 foot above the floors. Pieces of wood which had been only partially burned measured 4 inches in diameter. Without doubt the ashes were the remains of roof beams, since no specimens of the latter were to be found. Holes 2 feet in depth, formerly holding upright supporting posts for the roof, were located in the centers of rooms. Several large metates were turned wrong side up in loose earth above the floors. Circular depressions in the floors were similar to those observed at Corralitos, one contained a polished blackware bowl. Ashes beneath this vessel proved that live coals had kept food or water warm within it. A description of pottery found within this mound has already been given (see p. 337). Plate 21a shows layers of plaster adhering to the adobe walls and the location of a burial under a corner floor. A piece of basketry and a section of two-ply fiber rope were obtained from one of the rooms. The basketry was diagonally plaited, three strands placed over and three under the warps, with each strand advanced one stitch.

Other Mounds

The features of other mounds excavated in this region were similar to those already described except in mounds nos. 3 and 6, where the doorways were rectangular only. Wood ashes were found in all of the mound structures. Usually there was one layer about 6 inches thick, and this was generally about 1 foot above the floors. No roof timbers were found. In mound no. 1 broken ollas which had formerly rested on stones with fires beneath were observed. The earth was scorched above the ollas, showing that the fires had been burning when the walls or roof fell. In several of the mounds heavy metates were turned in unnatural positions on the floors or were contained in loose earth above them (pl. 21b).

⁴⁵ The "rectangular" doorways of this mound had sides slightly converging toward the top.



Mound no. 5. *a*, plastering on walls; *b*, step-passage doorway.



a



b

Mound no. 5. *a*, location of a burial, *b*, metate and mano.

I found no step-passage doorways at Corralitos, but Mrs. Houghton who has excavated in the Ramos district had found such openings. Roof timbers are not to be found in the mounds of Casas Grandes valley, but there are quantities of wood ashes.⁴⁶ I saw no kiva-like structures at any site and they had not been seen by my informants.

THE CLIFF DWELLINGS, BABICORA DISTRICT

Groups of cliff dwellings at widely separated localities in the Sierra Madre at points west and southwest of Las Varas ranch were investigated. Of these, the largest and best preserved group lies on the east side of Chico canyon not far from the junction of the Rio Chico and the Aros (see fig. 3). It is located under an overhanging rock wall in an almost unapproachable place visible only from the opposite side of the canyon. An accurate count of the number of rooms is difficult because some of the walls of the structure were almost obliterated. However, an estimate of fifty-five would be conservative. Plans, measurements, and details of the entire cliff house were noted. The most important features will be given here.

The building was formerly a unit. In front it was either two or three stories in height built up in such a manner that the overhang of the cavern prevented further overhead construction. The roofs were formed partly by the overhanging rock, partly by poles laid crosswise on the walls and a layer of adobe plastered over them. Behind the front rooms others had been built, the sloping rock determining the number of stories. At one point space admitted a section of rooms three deep; elsewhere they were two deep with rear walls built in the hindmost, leaving a space between wall and rock. A runway of rough masonry had been constructed in front of the house to provide a level place on which to move about (pl. 22*a*).

The walls were of adobe with boulders, twigs, and vegetable matter within them to act as reinforcement (pl. 22*b*). They averaged about 1 foot in thickness. Outside walls were plastered with a 1 1/4 inch layer of fine adobe, and inside walls were coated with one layer of very smooth, blackened, adobe plaster 1.16 inch in thickness. The floors in many of the rooms were stone-flagged, with adobe mortar between the flags, and a smooth coating of adobe spread over the whole surface.

Doorways were of three types: (1) Trapezoidal doorways, as in plate 23*b*. (2) Step-passage doorways, having sills at various distances above floors. They measured about 2 feet 8 inches from sills to lintels. (3) T-shaped doorways, having sills flush with floors. They were about 4 feet 6 inches

⁴⁶ This information was obtained from Mexicans who had secured pottery from mounds in Casas Grandes valley.

from sills to lintels. Type no. 3 occurred in outside walls only; the others in both outside and inside walls (pl. 22*a*). All types of doorways had lintels of flat strips of wood or of twigs and these were plastered on the under surfaces (pl. 23*a*).

There were three kinds of fireplaces: (1) Adobe platforms with basin-like depressions at their ends (pl. 23*b*). (2) Platforms of adobe with depressions at one end against the wall. The sides of the depressions were blocks of adobe. (3) Semicircular platforms of adobe, diameter sides against the walls.

A conspicuous feature of the house was the large number of small holes in the front wall commanding views of the points of approach to the dwelling. They measured 6 inches square and some had been sealed up with adobe (pl. 23*a*). Adobe bins containing corn cobs were observed in several rooms. In one bin dried kernels of corn were found. On the walls of one of the rooms step designs had been incised. Ascent to upper floors was made by means of ladders from without, since the upper rooms were not accessible from the lower ones.

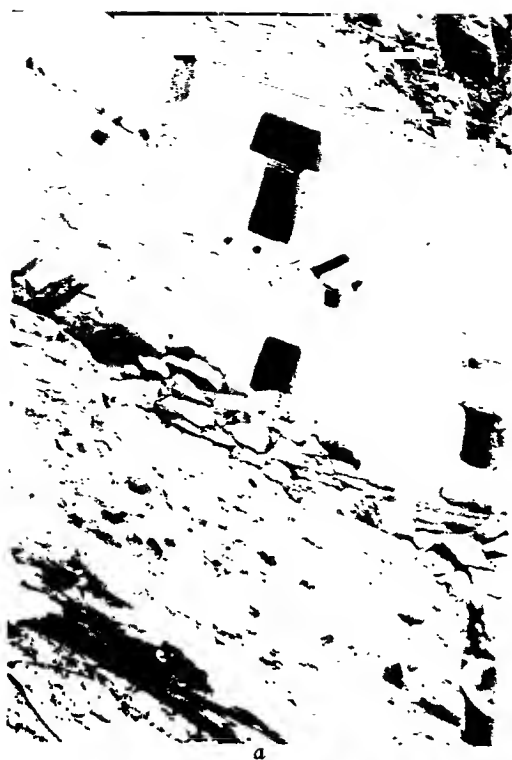
Some basketry was picked up inside the cliff house. It was of diagonal plaiting, three strands placed over and three under the warps, with each strand advanced one stitch. The material was said by Mexicans to be yucca. Two- and three-ply fiber cord, a fine quality of two-ply thread, and a small piece of woven cloth were found in a shallow refuse heap outside the house. Potsherds obtained from the same refuse heap showed pottery types as follows:

TABLE 16. SHERDS FROM THE REFUSE HEAP, CHICO CANYON CLIFF DWELLING

<i>Pottery types</i>	<i>Decoration</i>
Polychrome red-and-black-on-buff	Broad, horizontal, alternating, red and black lines, triangles with bent sides, interlocking prong designs, dot within a square, one effigy vessel sherd.
Polished red ware	
Polished black ware ⁴⁷	

Twenty feet in front of the house stood the base of what had formerly been a large olla-like structure of adobe reinforced with grass. The top had fallen to the ground, exposing the smoothly plastered interior. It contained corn cobs and refuse. The height, when intact, would probably have measured about 6 feet.

⁴⁷ The number of sherds was small, therefore no percentages are submitted.



Chico canyon cliff house. *a*, outside view, *b*, wall construction.



Chico canyon cliff house. *a*, step-passage doorway, *b*, fireplace.

Other cliff dwellings in the Babicora district had characteristics similar to those of the group just described. A thirty-room dwelling in the Garabato canyon, 20 miles west of Las Varas, was investigated. The architecture was the same style as that of the Chico group: T-doorways led to the outside, step-passage and rectangular doorways from one room to another. Fireplaces were of the platform-and-depressed-basin type. Pottery was the same as that of the Chico canyon dwelling, with the addition of incised red ware and plain buff ware. A feature of interest in this house not found in others was a room which had apparently been used as a watch tower. It had a number of small square windows which viewed all possible means of approach to the house. Designs characteristic of pottery decoration of the mound ruins had been painted on the walls. Smaller groups of dwellings in the region possessed architectural features similar to the larger ones.

SUMMARY

THE TYPOLOGY OF OBJECTS

Shapes

While the shape of the typical polychrome olla is distinctly local, many variations of the type reflect Southwestern influence. On the other hand, the forms of the polished red and polished black ware jars point toward associations with the South.

A conspicuous characteristic of the shapes of Casas Grandes pottery vessels is the high percentage of effigy jars, many of which resemble vessels from parts of Mexico nearest to northwestern Chihuahua. Jars in human or animal shape, or having human faces modeled on their sides, occur generally in cultures of Mexico subsequent to the Archaic. This applies especially to the northernmost extension of these cultures, i.e., to the La Quemada-Totoate-Chalchihuites culture of Jalisco and Zacatecas. These vessels appear in Chihuahua and cease abruptly at southern extensions of Southwestern areas. Such a distribution indicates cultural relations to the South.

Effigies made in polished red ware, polished black ware, and plain buff ware, pottery types which are evidently of earlier development than the polychrome series, show a considerable familiarity with the shaping of life figures. Raised-bowl and bottle-like shapes point toward southern influence. Pottery figurines occur in such small percentage that their weight in the determination of cultural relations is almost negligible. Carved stone images of human and animal figures suggest possible southern influence, but conclusions are uncertain, when based on comparisons of objects of rough stone, where important bodily features have become obliterated. Evidence of the absence of influence from the region north of the Rio Grande is the lack

of pitchers, large bowls, mugs, ladles, and spoons, which are typical of the Southwest.

Decoration

Whereas influence from the South is apparent on the forms of the pottery vessels, many of the design elements are undoubtedly Southwestern. The composition of these elements is, however, unique with the artists of the region investigated. Decoration of fine polychrome ware was based upon varieties of line paneling which necessitated much modification of the elements themselves. Great ingenuity is displayed in these compositions, which show a clear grasp of many artistic principles.

The Upper Gila spiral is common here. The macaw head design is known only from this area and may be considered a local development. An example of a foreign design developed under local stylistic limitations is the plumed serpent. The concept undoubtedly came from the South but the way in which it is carried out is local. The outline process of negative drawing is a second illustration of southern features adopted and adapted to suit local taste.

Design, then, points to closer affiliation with the Southwest than with Mexico farther south but has nevertheless enough Mexican characteristics to show direct influence from that area.

Technique

The Southwestern decorative techniques found in the Casas Grandes culture are: black-on-red, corrugated.

The purely Mexican techniques are: modeling, incision, incised designs filled with black and red paint.

Common to both areas are: polished red ware, and negative painting, found, e.g., in the Mimbres area and at Totoate, Jalisco.

Local techniques are: polychrome-red-and-black-on-buff, red-and-black-on-white slip, polished black ware,⁴⁸ the formal process of negative painting.

Thus, the external relationships of Casas Grandes decorative techniques are divided between the Southwest and Mexico farther south. The use of paneling and negative painting as factors of composition should be emphasized as the most prominent Casas Grandes contribution to art. The art style could not, however, have been so highly perfected without the artistic mastery of these two highly specialized and distinctive techniques.

⁴⁸ Prehistoric Southwestern vessels of this technique have only one surface polished black (see p. 359).

THE MOUNDS

The architecture of the Casas Grandes area shows contrast rather than similarity with the Southwest and Mexico. In the Casas Grandes area walls were formed of adobe, which was in turn plastered. In the Southwest stone masonry was used for pueblos and cliff dwellings more generally. But in the Middle Gila region adobe was used.⁴⁹ Dr. Kidder considers the Casas Grandes and Middle Gila cultures to be related architecturally.⁵⁰ Since, according to Gladwin, the polychrome ware of the Middle Gila is closely allied to that of Chihuahua,⁵¹ and since effigy vessels are found in both regions there may have been contacts between the two areas. In my opinion, however, Gladwin's illustrations are not particularly convincing. At Chalhchihuites walls were built of sun dried brick.⁵² Coursed masonry was used at La Quemada.⁵³ Still farther south at Santiago Ahuitzotla, D. F., Mexico, both adobe bricks and stone were used in wall construction.⁵⁴

Since the distribution of materials used for walls is so sporadic it may not be of great significance in proving contacts. For, of course, the possibilities for wall structure are not numerous.

The original height of the mound structures is undetermined because of the broken walls. However, the positions in which heavy metates with manos close by or within them were found lying in loose earth which had fallen in, sometimes two feet above the floors, would indicate that they had fallen from above. This seems to indicate that there were second floor rooms in which the grinding of corn had been practised.

Conditions found within the mounds at Babicora, such as burned roof beams, metates turned in unnatural positions on house floors, fires interrupted in the process of burning, and household implements scattered about, show that there had been great confusion therein. It may be concluded, therefore, that this region was subject to the exploitation of hostile tribes who finally caused abandonment of the mound houses by the inhabitants. An insufficient number of Casas Grandes mounds was investigated, but the observations in excavations made, together with the information from those familiar with conditions within the mounds of that district, suggest that the conclusion applied to the Babicora mounds might also apply at Casas Grandes.

⁴⁹ Fewkes, I, 37.

⁵⁰ Kidder, II, 117.

⁵¹ Gladwin, 82.

⁵² Gamio, 320.

⁵³ Batres, 8.

⁵⁴ Tozzer, 21.

THE CLIFF DWELLINGS

The similarity of culture traits of the cliff houses of the Babicora district to those of the mound houses is so noticeable that there can be little doubt that their inhabitants were contemporaneous. Since, however, cultures practically identical need not imply physical relationships between the people, additional evidence would be acceptable. Such evidence is available in the mound houses of the open country where conditions indicative of raids by hostile tribes were found. Desertion of the mound houses was apparently followed by a building of temporary shelters in the hills to the west between the open country and the present region of the cliff dwellings, where numerous rock walls, 1 to 3 feet high, and rock outlines of rooms are encountered. In the vicinity, potsherds in polychrome red-and-black-on-buff, red-on-black, and coarse red ware, as well as metates and manos were found. It is probable that the former inhabitants of the mound houses operated from these shelters as centers and constructed cliff houses in the mouths of caverns and on rock ledges where security was offered and defense made easy.

The cliff dwellings to the west of Casas Grandes valley have been described by Blackiston⁵⁵ and Lumholtz.⁵⁶ In architectural features they appear to agree with those of the Babicora district. Blackiston remarks on the similarity of the pottery of the mound culture and that of the cliff dwellings west of Casas Grandes valley, concluding that it represented the same people.⁵⁷

For the Babicora district, it is suggested that the probable cause of abandonment of the cliff dwellings was scarcity of food. The rocky, poorly watered character of the region in which these structures are situated is extremely unfavorable to the growing of corn. Yet corn constituted a principal article of food, as evidenced by the quantities of cobs observed in the vicinity of the houses.

CONCLUSION

Altogether then the culture of the Casas Grandes region shows many local developments. In its relation to neighboring cultures it shows closer affiliation to the Southwest, as evidenced by many details, than to Mexican cultures proper. There are, however, sufficient intrusions of Mexican elements to show that there were contacts from south as well as from north even though the former had less influence than the latter.

⁵⁵ Blackiston, II, 8-20.

⁵⁶ Lumholtz, I, 61.

⁵⁷ Blackiston, II, 8, 24.

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THE PHYTOGEOGRAPHY OF CULTIVATED
PLANTS IN RELATION TO ASSUMED PRE-
COLUMBIAN EURASIAN-AMERICAN CONTACTS

By E. D. MERRILL

THERE seems to be little unanimity of opinion as to the origins of ancient civilizations in America. There is the group that would derive these full-blown from a hypothetical Atlantis¹—the supposed source alike of the original Mediterranean and American cultures; some, who cannot accept the Atlantean theory, explain certain similarities between the ancient civilizations of Mexico, Peru, and Central America and those of Eurasia, through the transmission of ideas indirectly from the Mediterranean region and western Asia across Polynesia to America, undaunted by the distance and the lack of corroborative evidence in the great stretches of Malaysia and Polynesia; others set up the hypothetical continent of Mu somewhere in the Pacific ocean whence America was populated; others who insistently claim that the early American cultures were developed by the “lost tribes of Israel”; others pin their faith on Welsh colonization under a Prince Modoc about 1170 A.D.; and still others would derive these early American pioneers of civilization, or at least the higher cultures in America, from the Aryans, Mesopotamians, Egyptians, Greeks, Latins, Japanese, Chinese, and even the Polynesians. There seems to be no limit to the fancies of those who have solved, to their own entire satisfaction, the riddle of early American civilizations. Opposed to this rather large heterogeneous group are those who maintain that the pre-Columbian cultures in America are autochthonous, having developed here wholly free from any direct or indirect contacts with the Old World, except those of minor importance via Siberia, Behring straits, and Alaska.

As one reads the literature, mostly popular and semi-popular, supporting the first group of fanciful theories, one may be impressed by the array of assumed facts that are presented; and sometimes one is almost convinced that the theorist must be correct in his deductions because of the plausible presentation of the supporting evidence—until one realizes that the data given represent only an affirmative argument in support of a preconceived theory, the negative data usually being conspicuous by their absence. At this stage of realization he will probably cast his lot with the last group who maintain that man reached America as a very primitive savage and that the pre-Columbian civilizations in America developed here independently

¹ See L. Spence, *The Problem of Atlantis*, 1–232, pls. 1–15, 1925 (revised edition); *Atlantis in America*, 1–213, pls. 1–16, 1925; *The History of Atlantis*, 1–238, pls. 1–16, 1926.

of all direct or indirect European or Asiatic influences, except minor ones coming in from Siberia via Alaska.

To emphasize the diversity of opinion that exists and to indicate how difficult it is for the man on the street to form a correct judgment, the following passages are quoted [*italics mine*]:

Truly here is a land [Peru] of a thousand romances with its challenging inklings of prehistoric races, its stirring stories of Incan dominion . . . among archeological traces of civilizations *that seem to affirm their kinship alike to Egypt, Greece, Babylon, and the Orient* they gather new fascination and arouse new speculations.²

*I shall merely mention the fact that Toltec and Maya civilizations did not originate on American soil. . . . This civilization first appears in America, like the Cr -Magnon in Europe, as full-blown, with a ready-made art, a high condition of ecclesiastical and social polity, and an advanced system of hieroglyphic writing. These have no roots in the soil.*³

When the Maya civilization first manifests itself upon Central American soil, it does so not in any simple or elementary manner, but as a full-blown culture, with a well-defined art, architecture, religion, and system of hieroglyphic writing. *We find not a single trace of its evolution or development upon American ground*³

One frequently sees newspaper articles bearing on this subject, a recent one emanating from Los Angeles entitled "Aztec Link with Chinese Seen in Urns Unearthed in Mexico," quoting G. Ryden to the effect that:

Many of the faces on the urns are pure Chinese in character and others strongly resemble ancient Egyptian sculpture and pottery

and concluding that

*Without a question there was a connection between the Chinese and Aztec civilizations and possibly with the Egyptian.*⁴

In sharp contrast to the above is the following anthropological opinion.

There is no evidence that it [pre-Columbian America] ever received "a dose of civilization" from the old world. A close study of aboriginal America will convince any one that man probably arrived here with a minimum of culture (the bow and arrow or spear thrower, the dog, fire, and the ability to chip stone) *and that agriculture, architecture, writing and so forth are strictly autochthonous.*⁵

The quotations from Spence are from a protagonist of the Atlantis theory, one that would derive the early Mediterranean and American cultures

² W. J. Showalter, *The Lure of Lima, City of the Kings*. Nat. Geogr. Mag., 57: 784. 1930.

³ L. Spence, *The Problem of Atlantis*, 116, 121, 1925. (Revised edition.)

⁴ The New York Times, p. 29 (Oct. 3), 1930.

⁵ P. S. Martin in the *Atlantic Monthly*, 861, June, 1930.

from a hypothetical Atlantis situated between Europe and America. He, with many others, maintains that the Atlantean theory of origins of early American cultures is more plausible than that supported by Perry, Elliot-Smith, and others who postulate the slow spread of Egyptian civilization of the pyramid epoch across the Pacific to America. Neither group is apparently willing to admit the possibility, much less the probability, of no contacts whatever, direct or indirect, between the two hemispheres that had any important bearing on the development of the early American civilizations.

The diametrically opposed theories of early Eurasian influences versus an autochthonous civilization in America lead me to approach the subject from a point of view that has curiously been overlooked, ignored, or minimized by proponents of the Eurasian influence idea, and by most or all popular writers on ethnological subjects bearing on this question, and that is from the standpoint of the origins of cultivated plants and domestic animals, or in other words the origins of agriculture. These points have been considered by some ethnologists who have realized their full significance, but many seem to have avoided anything approaching the field of biology.

From the very large amount of data now available it is clear that man has existed for a long period of time in both hemispheres—in fact so long that the period, at least in Eurasia, is to be measured in terms of geologic time, rather than on the basis of our current historical chronology which covers but a few thousand years. In spite of this long human history *there was not a single basic food plant or a single domesticated animal (except the dog) common to the two hemispheres before Columbus' voyage in 1492.*

This italicized statement is not an original or even a new one. A. de Candolle⁶ in the last entry under concluding remarks in his classical work on the origin of cultivated plants states the matter thus:

In the history of cultivated plants I have noticed no traces of communication between the peoples of the old and new worlds before the discovery of America by Columbus.

The fact was so obvious that he apparently did not consider it even necessary to amplify the statement further in connection with any supposed Eurasian influences on early American civilizations.

It is a striking and an incontrovertible fact that the early American and Eurasian civilizations, both based on agriculture, were established on entirely different and unrelated series of cultivated plants and domestic animals. The only domestic animal common to the two hemispheres in pre-Columbian times, the dog, clearly of Eurasian origin, supports the argu-

⁶ A. de Candolle, *The Origin of Cultivated Plants*, 1-468, 1898.

ment that man reached America as a primitive nomad, either bringing the dog with him or receiving it at a later date through his northern contacts in a land inimical to agriculture. Man coming in as a primitive nomad over a cold northern route developed agriculture independently in America as he gradually extended southward and came in contact with native plants adaptable to cultivation as a source of food. Even in case man left Eurasia on his American adventure by a northern route subsequent to the development of agriculture in the home land, he would have lost all the arts of agriculture, all the agricultural plants, and all knowledge of the subject in the long period involved in nomadic life as a hunter and a fisherman. This original journey was not one of a few weeks, or months, or years, but covered many generations.

An important difference between pre-Columbian American agriculture and that of temperate Eurasia, is that in America most of the basic food plants were of tropical or subtropical origin; but a few of these, such as maize, beans, squash, and pumpkin were eventually found to be adapted to growth in cooler regions, and in pre-Columbian America were widely distributed in temperate areas. In contrast to this, Eurasia, in addition to supplying our most important domesticated animals that could thrive in the cooler regions, produced a very striking series of basic food plants in temperate regions. Some such plants were: wheat, barley, rye, oats, millet, Italian millet, buckwheat, a variety of fruits, and a very important series of vegetables, the Brassicas (cabbage and the very numerous varieties of turnips and of mustard), the radish, the pea, parsnip, carrot, beet, lettuce, endive, and numerous others. Is not this factor one to be considered in explaining the reasons for the establishment of early high civilizations in the tropical and subtropical parts of America in contrast to the development of ancient civilizations, particularly in Europe, under temperate and subtemperate climatic conditions?

The basic food plants of Eurasia are the common cereals, such as wheat, rye, barley, oats, rice, millet, Italian millet, sorghum, pearl millet, and others of minor importance such as ragi, teff, coix, etc.; in this category for convenience buckwheat may be placed, although it is not a true cereal; among the vegetables are the turnip, cabbage, rape, radish, beet, parsnip, carrot, onion, leek, garlic, shallot, spinach, egg-plant, lettuce, endive, salsify, celery, asparagus, pea, soy-bean, cow-pea, chick-pea, pigeon-pea, lentil, broad bean, hyacinth-bean, asparagus-bean, taro, the yams, etc.; among the fruits are the apple, pear, plum, cherry, European grape, apricot, peach, prune, olive, fig, almond, persimmon, quince, pomegranate, melon, watermelon, cucumber, and in the warmer regions the banana, cocoanut, orange,

lime, lemon, pomelo, date, mango, bread-fruit, jak fruit, rambutan, litchi, longan, lansone, mangosteen, and others. The domestic animals include all breeds of cattle, horses, water buffaloes, yaks, sheep, goats, swine, ducks, geese, hens, and pigeons. These are the basic agricultural foods of the entire eastern hemisphere; of course, many of them are limited in their range by climatic conditions. From the standpoint of European civilization, many of the plants that will thrive under European climatic conditions, and some of the animals, did not actually reach Europe until well into the period of recorded history; some were introduced in very modern times. The point I wish to make is that they are all natives of some part of the Old World.

While the list of essential food plants and domesticated animals of Eurasia is an impressive one, certain very important items are lacking; these are essentially the agricultural products on which the American civilizations were based. The basic food plants of American origin include but one cereal, but this a very important one, maize or Indian corn; in addition, there are such vegetables as the potato, sweet potato, lima bean, our common garden and field beans, tomato, pepper, Jerusalem artichoke, squash, pumpkin, quinoa, peanut, and in the more strictly tropical regions cassava, arrowroot, chayote, and such fruits as the papaya, avocado, pineapple, custard apple, soursop, cherimoya, sapote, sapodilla, cacao, cashew, and others. The domesticated animals were peculiarly few, the llama and alpaca in South America and the turkey in Mexico. These are the basic agricultural products on which the American civilizations were based, and none of them were known in Europe or Asia previous to 1492, even as none of the longer Eurasian list were known in America before that date.

Agriculture as an art must have existed both in the Old and in the New World for many centuries previous to the dawn of anything that can be interpreted as recorded history. When man had attained a degree of culture that enabled him to make simple records, or reached the period we speak of as the dawn of recorded history, every important basic food plant now grown was already in cultivation somewhere in the world; many of these were widely disseminated in either the eastern or the western hemisphere, *but none were common to both regions*. Primitive man had also selected and tamed all of our important domesticated animals. While modern man has greatly improved both his cultivated plants and his domesticated animals through breeding and selection, he has actually brought into cultivation not a single important basic food plant and has added nothing to the list of domesticated animals that we inherited from our remote prehistoric ancestors. Our modern accomplishments in the improvement of plants and

animals, although important and greatly beneficial to society, are perhaps insignificant as compared with the vastly greater accomplishments of our very remote ancestors, they actually brought these plants and animals in from the wild, selecting, domesticating, improving, and adapting them to their needs. They thus established a permanent agriculture, and insured a constant and dependable food supply, on the basis of which it was possible for higher civilizations to develop. It is an evident fact that this process of domestication of plants and animals took place independently in various parts of Eurasia and in America; that agriculture was developed in the two hemispheres independently of each other's contributions in plants, in animals, and in methods; and that concurrently and likewise independently civilizations developed in Eurasia and in America, the one being uninfluenced by the other in the least.

Here is a most striking and important conclusion drawn from the domain of botany that clearly invalidates various theories that have been proposed and stoutly defended to explain the origins of American civilizations on the basis of Old World contacts. Had there been even the most tenuous or even merely accidental contacts, and these at long intervals, across either the Atlantic or the Pacific, after agriculture had become an established art, agricultural products, i.e., food in the form of seeds, tubers, etc., would have been among the very first items transmitted across the ocean, not a style of architecture, not sculpture, not hieroglyphic writing, not social, political, or ecclesiastical organizations, but the actual food or food products essential to the maintenance of life. Cultivated plants and domesticated animals failed to bridge the chasms of the Atlantic and the Pacific. If agriculture could be developed independently in America as was most certainly the case, for pre-Columbian American agriculture was based wholly on native American plants and animals, what reason is there for even thinking that the more advanced arts of architecture, sculpture, hieroglyphic writing, the organization of society, etc., could not have developed here? Why is it necessary to seek Eurasian origins for these developments?

To the theorist supporting a preconceived idea appertaining to American origins this situation may appear to be irrelevant and unimportant; to an individual approaching the matter from a biological standpoint, and familiar with the very rapid spread of American economic plants in Eurasia and vice versa subsequent to 1492, it assumes proportions of major importance. It is a factor that the popular writer and the ethnologist who concerns himself with a discussion of pre-Columbian Eurasian-American contacts cannot afford to ignore if he expects his conclusions to be respected among colleagues, and more particularly by those individuals working in

apparently unrelated fields, such as the biological sciences. To the protagonist of the Atlantean theory of American origins I merely query: Assuming the former existence of Atlantis somewhere between Europe and America for the sake of argument, what could have been its agriculture that transmitted to its supposed descendants in Europe and in America not a single basic cultivated food plant, nor a single domesticated animal in common?

It seems to be clear that primitive man attained a wide geographic distribution before he had developed any very high degree of culture. The positive evidence would seem to indicate that man had reached the New World from Asia sometime between 10,000 and 25,000 years ago. Is it not possible, during man's development in various parts of the world, that in relation to artifacts (such as stone implements, and the more primitive arts and crafts) there was a more or less parallel development in different regions and that the resemblances we note are largely or at least partly fortuitous? In other words, is it necessary to postulate that the development of any primitive art took place only in one specific locality, and that it was thence disseminated by man either directly by migratory groups or indirectly through contacts with neighboring peoples? Unquestionably some arts and crafts developed and were disseminated from a single place of origin, but certainly not all of them have this history.

There is a very common tendency to trace or to attempt to trace an art, an invention, or an innovation to a common source (even as comparative philologists stress the similarity of words and constructions in determining the relationships of various languages). Within limits, conclusions drawn from the results of comparative studies are reasonable and logical ones, but there are limits which are not always recognized. The school that cannot admit an autochthonous civilization in America presupposes Egyptian influences from the accidental or incidental similarities of American and Eurasian architecture, sculpture, hieroglyphics, political and ecclesiastical organization, etc.; then it tries to explain how these ideas reached America and developed here. After all, the percentage of similarities is really very small indeed as compared to the tremendously larger number of dissimilarities; and sometimes one needs a vivid imagination to see any resemblances, even when his attention is directed to the few selected comparisons.

A mental excursion into a field outside of one's specialty is frequently stimulating in the extreme, and often leads to a better understanding of problems within the mental excursionist's own domain. To the popular writer on ethnological subjects (such as possible pre-Columbian Eurasian-American contacts) as well as to the semi-professional, amateur, and near-ethnologists, I would bespeak the desirability of mental excursions into the

domain of biology, at least into the fields of phyto- and zoogeography, before conclusions are reached that from a biological standpoint are absolutely untenable. Unless they take these mental excursions with an open and unbiased mind, they should, figuratively speaking, remain at home. A reviewer's suggestion to one author (Spence) that the perusal of certain contributions referred to by the latter as "more or less obscure papers" might enable him to modify or correct his hypothesis resulted in a statement that:

An examination of these has not altered my original views, which were the outcome of prolonged consideration and research

This is an illustration of an individual taking a mental excursion into fields foreign to his specialty but with a closed mind or one so prejudiced in favor of a preconceived hypothesis that the journey was fruitless; or maybe the phytogeographic item above discussed was of too little importance to be even classified among the "more or less obscure papers." After all, we take our cultivated plants and domesticated animals for granted and seldom give a thought as to whence they came, when and where they were adapted to the needs of man, how, when, and by whom were they disseminated, and whether or not major distribution took place in prehistoric or in modern times. But these factors are of distinct importance in relation to certain ethnological questions.

It is clear that all cultivated plants and all domesticated animals were derived at some time in the development of the race, and for the most part early, from wild forms. Hence, it is important that the home of the original species be considered, as well as how and when these cultivated plants and domesticated animals were distributed, and what limits there were to universal distribution. To him who theorizes on pre-Columbian Eurasian-American contacts it is a subject worthy of the most critical consideration, and one that cannot safely be ignored. The biological-agricultural evidence is wholly and unmistakably in support of an autochthonous development of the pre-Columbian civilizations in America, with no Eurasian contacts or influences shaping or developing them.

NEW YORK BOTANICAL GARDEN,
NEW YORK CITY

IN SO FAR as old records and ethnological investigations exist sufficiently adequate to warrant conclusions no ethnic groups of the historic period in Wisconsin were unfamiliar with the manufacture and use of earthenware vessels, nor has archaeological research recorded any culture in this area where pottery was not an important trait. Until additional evidence is forthcoming to the contrary, it seems probable that all the aborigines of this state were pottery makers.

Descriptions of pottery exist for the Menomini, Potawatomi, and Winnebago. These accounts are not only rather meager as to detail but, in the main, are rationalizations since either the pottery described does not occur in Wisconsin or any other known area or the methods of manufacture given are highly improbable if not totally impossible. However, in one or two instances, the description of the pottery itself resembles rather closely that actually found at primitive sites, and should be accepted as elements of importance in assessing the available data.

Archaeological field investigations have supplied us with a few entire pottery vessels and quantities of sherds. If the historic Indians made pottery, it must be plentifully represented in the ware occurring at specific sites formerly occupied. Other types of pottery may also be present at the sites, due to earlier, foreign occupation, but the materials occurring at such places must include the products of the historic inhabitants.

However, the pottery from Wisconsin campsites and graves obviously represents more than a single basic type. The local student's first task, therefore, is one of classification; the next relates to type distribution. The considerable archaeological information on pottery must be combined with the meager and largely inaccurate accounts by Indian informants of the pottery of historic groups, and with this material the student must try to establish, where possible, relationship between locally prehistoric and historic cultures. Fortunately, the results in adjacent fields are applicable to local problems.

The most plentiful and widespread pottery type within the state may be briefly described as follows: a lightly-fired ware, coarse and granular in texture, grit tempered, brittle; the body has a conoidal base; the neck is broad and low with a slightly flaring rim, or the upper pot terminates without neck in a straight or slightly contracted rim; rims are thin, thickened or outwardly folded; a decorative treatment of a greater portion of the outer surface consists of a general roughening imprinted by means of a cord-wrapped paddle, or similar implement, and outer rims are in most instances

additionally decorated with simple geometric patterns imprinted with cord-wrapped implements, or to a less prevalent extent, incised (pl. 24a).

This type is found to some extent wherever primitive campsites have been located in Wisconsin, but is particularly abundant and the dominant type in the eastern half of the state, especially along the shore of Lake Michigan and in the Fox and Rock river basins. Outside the state, it is the most common ware east in Michigan; to the south it abounds in Illinois; to the west it is of common occurrence in Iowa, and turns up at many sites in Minnesota; it occurs at least as far north as Isle Royale, in Lake Superior. Its distribution closely corresponds to the probable distribution of Algonkian tribes in the Western Woodlands area. It is basically identical with eastern Algonkian ware and is exclusively present at certain village sites known to have been long occupied by historic Algonkian groups during the era of their pottery manufacture. Therefore, it must include the pottery types, or subtypes, of the historic Algonkians of Wisconsin. Accordingly, it seems justifiable to refer to it as an Algonkian type of pottery, or more specifically, a Western Woodland Algonkian type.

However, inasmuch as an Algonkian type of pottery might be diffused to another ethnic group, a non-linguistic terminology seems advisable. For the Wisconsin area I am naming this ware "Lake Michigan ware," since the shores of this lake apparently comprise the strong center of distribution. The term is intended to suggest not a limited region, but rather a center of dominant occurrence. Terminologically boundaries are less important than the center of culture dominance, whence, through migration and diffusion, influences would normally extend over an area so broken and irregular in outline as to defy a hard and fast determination of boundaries.

The effigy mound pottery, as represented both in vessels and tobacco pipes from the peculiarly Wisconsin tumuli, is typical Lake Michigan ware (pl. 24b). This raises the question whether, after all, the effigy mound builders were not Algonkians. Apart from mound-building itself, archaeologists have not as yet found specific evidence of traits foreign to the Algonkians, and the current belief that the prehistoric Algonkians of the Woodland area did not build mounds is a pure assumption.

The pottery type of next widest distribution is basically different in all respects. Although the product of low firing, it is at its best markedly superior to the finest Lake Michigan type ware in hardness and durability. It is rarely grit-tempered; I know of but one specimen. Shell tempering prevails, although an unknown material, perishable when subjected to heat, was used in a great many instances, resulting in small, empty cells permeating the material. Sometimes both shell and perishable tempering were



- a*, Large pottery vessel illustrating Lake Michigan ware—Mended and restored.
b, Large pottery vessel found in effigy mound, illustrating Lake Michigan ware—Mended and restored.
c, Large pottery vessel illustrating Upper Mississippi ware—Mended and restored.
 (Milwaukee Public Museum Photos.)

employed. The ware is flaky, rather than granular, very light, and tends to break in straight lines or regular curves. The surfaces are characteristically smooth though sometimes pitted, owing to the perishable tempering. A type shape prevails, with few exceptions: the body is ellipsoidal, broad and squat, with a rounded rather than conoidal base; the neck is nothing more than the line of juncture between the flaring rim and the contracting upper walls of the body; large vessels are generally, and small vessels occasionally, equipped with a pair of vertically placed loop handles, situated on diametrically opposed sides, connecting the rim with the upper shoulders. The decoration is invariably by incision, but in many instances takes the form of broad fluting. The ornamented area is the upper body below the neck. The lip is generally scalloped or notched (pl. 24c).

The distribution of this variety is comparatively limited. In so far as there is accurate information, it is most plentiful at sites along the shores of the Mississippi and lower Wisconsin rivers, and in a small isolated area which had its center along the west shore of Lake Winnebago. It is found sparingly here and there at campsites elsewhere in the state. It is the pottery of Wisconsin mound builders in only one known instance, at the Grand River group of conical mounds in Green Lake county.

Outside the state, this type of pottery is more characteristic of a western area, centering in Minnesota, than elsewhere. It is reported from many sites in Minnesota, and Keyes¹ cites its occurrence in South Dakota. Strong² reports a very similar type in Nebraska. It apparently is sporadically encountered in Illinois and Missouri. It is an important Iowa form of pottery, known there as a marker for the Oneota culture. Its general distribution and its exclusive occurrence at well-known Siouan sites establish its Siouan authorship in at least many instances, and warrant the designation of this ware as a Western Woodland Siouan type.

This pottery is always associated with a complex of distinctly recognizable traits, viz., a preponderance of a triangular type of arrowpoint, an extraordinary plentitude of "snub-nosed" scrapers, a flatstone grinding mortar and muller, a Siouan type of stone pipe bowl, burial in the flesh in an extended position, and others of less importance.

To avoid the linguistic designation "Siouan," I have tentatively adopted "Upper Mississippi ware" for the Wisconsin variant of this pottery to suggest the apparent geographical center of its local distribution. Since Holmes uses the term in a different sense while the geographical connotation of

¹ C. R. Keyes, personal communication.

² W. D. Strong, personal communication

"Upper Mississippi" is too inclusive for present purposes, the term is here defined to apply to that portion of the river flowing between Wisconsin on the one hand and Minnesota and Iowa on the other, the center involved lying primarily in Minnesota, northern Iowa, and western Wisconsin. It does not appear to be dominant over any considerable area.

Upper Mississippi pottery has a strong, isolated occurrence along the western shore of Lake Winnebago in the midst of what otherwise is Lake Michigan culture territory. Specific sites in this area have produced Upper Mississippi ware exclusively. Some of them are known as Winnebago of the early historic period, when pottery was still being made. The only possible conclusion is that Winnebago pottery was a close-to-type variant of Upper Mississippi ware. In this respect the Winnebago seem to have retained a culture trait probably shared by other Siouan groups, despite long, close contact with Algonkians. Radin³ has recorded a Winnebago account of pottery which, although patently a rationalization as to methods of manufacture, briefly describes the type of ware actually found at old Winnebago sites. According to this statement, the Winnebago product was tempered with shells and sturgeon glue, the latter suggesting a possible form of perishable tempering material; the vessels had rounded bases and an incised pattern for decoration. This description could not possibly apply to Lake Michigan pottery, but briefly gives the most important features of Upper Mississippi ware.

If Winnebago pottery was of this type, the effigy mounds of Wisconsin, with their typical Lake Michigan pottery, were not built by the Winnebago. As a matter of fact, there is no archaeological evidence for the Winnebago origin of these mounds. There is one group of mounds in Wisconsin—the Grand River group in Green Lake county—entirely composed of conicals, which were built by Indians making an Upper Mississippi type of pottery. The Grand River culture, therefore, is probably to be classified as a subtype of the Upper Mississippi culture, the only mound-building variant of this culture as yet discovered.

One of the most interesting pottery types found dominant at a Wisconsin site is a close-to-type variant of Cahokia ware. At present only a single site is known for this culture, the locally famous Aztalan fortified village site and mound group, situated in Jefferson county. The pottery is but one of a complex of culture markers, including truncated pyramidal mounds, ear spools of bone, stone and pottery, the Cahokia type of large chipped chert hoes, disc beads of shell, three-notched triangular arrowpoints, perforated shell implements, and other criteria of less importance.

³ Paul Radin, *The Winnebago Tribe*, BAE-R 37: 76-103, 1915-1916.

Aztalan pottery is strikingly peculiar when compared with any other local variety. The ware, if lightly fired, is sometimes flinty hard,—as durable as any primitive pottery in North America. Fine shell tempering prevails, and the hardest ware is invariably of that tempering. There are numerous instances, however, where no tempering is apparent. Surfaces are characteristically smooth, and the finest examples are as highly and smoothly burnished as the best of late Peruvian Chimu ware. Material and surfaces are artificially colored in many instances. A reddish slip was applied to the exterior of some vessels, but surface color was more characteristically applied as a paint. In both cases the color element is some shade of red, varying from a dull brick color through brighter hues to a dark red. Some of the painted reds are sufficiently transparent to permit the tempering material to show through. The black ware seems sometimes to have been dipped in a dye, since the color permeates the material through and through; in other instances it was applied as a thin coating of paint.

The vessels are characterized by a great variety of shapes, the most characteristic being circular in lateral cross-section and squat, with a rounded base. The upward curve from the base terminates in sharply angular shoulders. The walls sloping from the angles of these shoulders toward the neck are either straight or concave in vertical cross-section. A short, flaring rim, generally present, is marked by a smooth, horizontally flat lip. The contracting walls of the vessel terminate in some instances in a square rim without the flare or show a very slight tendency to flare. The finer specimens are usually decorated about the area between the neck and the shoulder angle. Decorations are executed in sharp or smoothly rounded incisions. Patterns are uniformly geometric, including both simple arrangements of straight lines and curvilinear motifs (pl. 25*a*); the most characteristic of the latter is a continuous meander of complementary spirals. Sometimes such vessels have handles, vertically placed loops, each of two placed on diametrically opposed sides connecting the rim with the shoulder angle.

Bowl shapes include: hemispherical pots; squat ellipsoidal vessels without necks, the contracting upper walls terminating in a centrally placed superior opening; flat-bottomed shallow dishes, some with diametrically opposed handles respectively representing the head and tail of an animal or bird. Where present, bowl ornamentation invariably occurs on the outer rim and includes both incised and painted designs, the latter very simple and generally outlined by rows of deep indentations. Other less usual forms include ladles (pl. 25*b*), handled lids for vessels, and mushroom-shaped pottery shapers.

The last of the prehistoric Wisconsin cultures dominant at sites has been classified as Hopewell,—as a local variant of the more specialized Ohio culture of that name. The markers for this culture, aside from pottery, are: relatively large conical or ellipsoidal burial mounds; burial in rectilinear, bark-lined pits, sometimes covered with structures of poles and bark slabs, situated below the mound floor; disposal of the dead in extended position, commonly orientated with head toward the east; large chipped-stone implements of characteristic material and shape; copper beads; pearl beads; copper plaques of the “breast plate” type. copper ear spoons; copper celts and axes, wooden beads covered with sheet silver and perforated for purposes of attachment; concave-based platform pipes of stone.

The pottery of this culture is represented in our collections by but few specimens, including three mended and restored vessels and a small number of sherds. Judging from these, the ware is either tempered with grit or some unknown material which has perished in the process of firing. The specimens range considerably in hardness, but at best are somewhat more durable than Lake Michigan ware. Undecorated surfaces are generally rough, but decidedly smooth in the case of the finer ware. Two shapes are represented. The one is associated with the poorer grade of ware and is a tall vessel with conoidal base. There is no true neck, but the upper walls contract slightly previous to flaring slightly at the rim. The other shape is associated with the finer ware (pl. 26*a*). The base is rounded. The walls are marked by four lateral bulges which give the vessel in lateral cross-section a square effect. The shoulders are abruptly rounded to meet a short, cylindrical neck, which terminates in an outward folded rim, vertically directed.

The decoration varies with the grade of the ware. The rim, however, is invariably ornamented either by means of an incised criss-cross design with an inferior border of indented dots, or by means of diagonally parallel imprinted or rouletted lines with a similar border of dots. Body decoration, when present, dominates the entire outer surface and follows a general plan of variously directed ornamental bands traversing a surface otherwise uniformly roughened by means of rouletting. The finest examples offer a unit design for an entire vessel with corresponding motifs on opposite sides, the design element heavily outlined by means of a bold incision.

The distribution of the local Hopewell variant has not been ascertained, but it is found along the shores of the Mississippi river, from Trempealeau county on the north to the Illinois state boundary line.

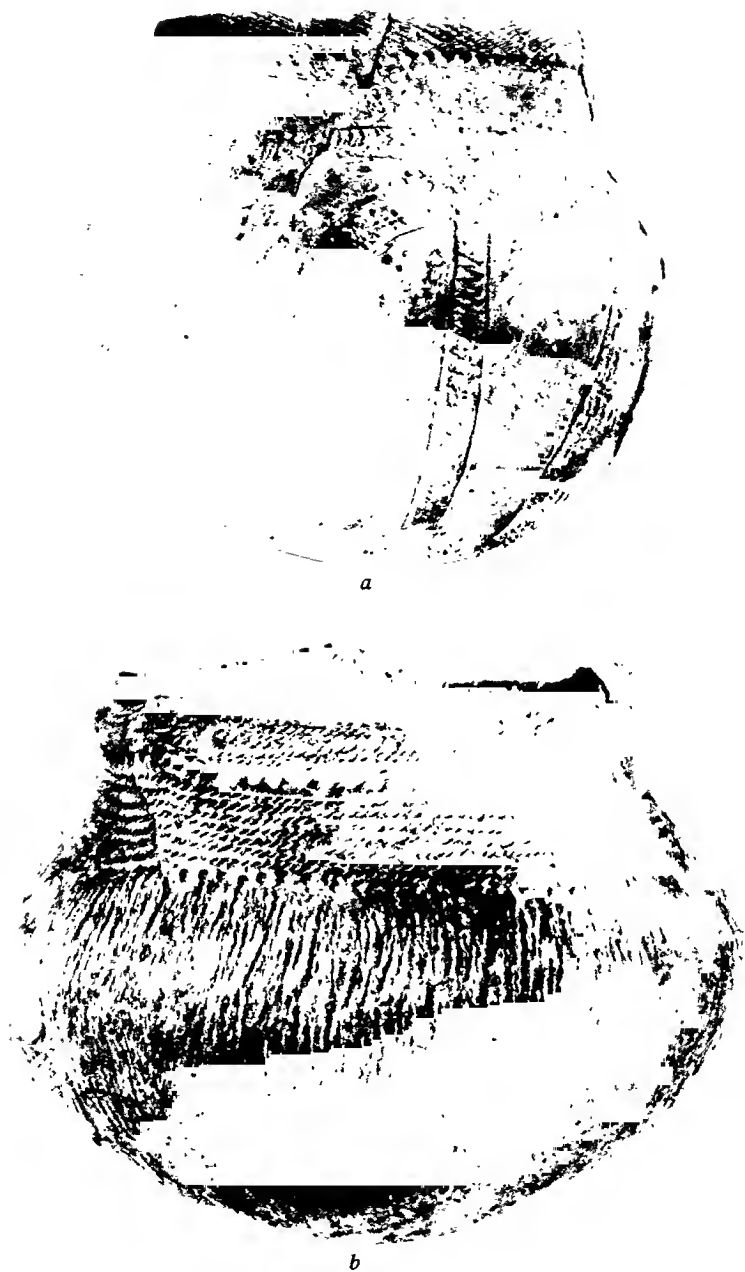
Some types of pottery sporadically found in Wisconsin do not seem to fit into any of the groups as classified here. These may either be due to foreign trade, or represent numerically small groups, or simply remain un-



a, Pottery vessel from the Aztalan site, illustrating Cahokia ware. Mended and restored.

b, Gourd-shaped vessel from the Aztalan site. Mended and restored.

(Milwaukee Public Museum Photos)



a, Pottery vessel illustrating Hopewell ware. Mended and restored
b, Pottery vessel with pointed, angular rim, of unclassified type Mended and restored.
(Milwaukee Public Museum Photos)

placed because of dearth of information. Since these campsite materials have never been carefully studied, and no one variety has as yet been found *in situ*, they must remain for the present unclassified.

Perhaps the most common and widespread of these unclassified types is characterized by the pointed rim. In most respects similar to ordinary Lake Michigan ware, it may be a subtype thereof; or possibly it is nothing more than a specialized unclassifiable shape. It is primarily peculiar in that the rim describes a pentagon rather than a circle, and the angles are marked by upwardly directed points (pl. 26*b*). This shape is common only at the Aztalan site, where it is markedly foreign to the culture dominant there.

The classification given here does not presume to do more than touch fundamentals. The field as a whole has been but superficially examined and the material available for study while representative is quantitatively inadequate to permit a more detailed scheme. Eventually, such large classes as Lake Michigan or Upper Mississippi pottery will probably be found to include numerous subtypes with culture status. An initial plan is needed to facilitate and guide future work, and it is hoped that the framework here presented will serve the local field in such capacity. The terminology may serve in Wisconsin until increased information shall render possible a more suitable one.

MILWAUKEE PUBLIC MUSEUM,
MILWAUKEE, WISCONSIN

NAVAHO TREATMENT
OF SICKNESS:
DIAGNOSTICIANS

By WILLIAM MORGAN

WHEN the "family remedies" of a Navaho Indian give no relief, he consults a diagnostician, of whom there are three kinds: men (or women) "with motion-in-the-hand," stargazers, and listeners. These diagnosticians are consulted about sickness, dreams, and any unusual happening; they are asked to provide means of warding off dangers, and are summoned to advise about the recovery of lost horses, sheep, and money. [B, E, H, K, P, t, d, f, i, p.]¹

A definite distinction must be made between shamans and diagnosticians. The Chants conducted by shamans comprise the religion of the Navaho. Legends about these Chants are transmitted orally from generation to generation among the shamans. These legends describe how the gods revealed the Chants to the Navaho and sometimes contain specific instructions about the preparation of ceremonial paraphernalia and sand paintings. Diagnosticians do not use sand paintings or masks, nor do they possess tribal legends about their work. The collecting of medicines and the preparation of material ("cigarettes," kethawns, etc.) for a Chant is an extremely complicated procedure. A diagnostician may or may not observe similar restrictions according to his own inclination. During a Chant, the words of a song and the ritual treatment of a patient on a particular sand painting may not be altered; whereas, the diagnostician may make his own songs and minor rituals and may vary them at will. The shaman has no technique for discovering the cause of an illness, and wherever the cause is obscure, the shaman will not know the cure. A diagnostician, however, will reveal the cause and will prescribe the cure. C, a shaman, consulted two diagnosticians about a recurrent dream which was making him sick. The diagnosticians told him the particular gods who were causing the dream, and why they caused it, and what Chant would remedy his condition. The

¹ Capital letters denote Navaho informants. Small letters denote white informants. The writer possesses personal information of and from informants and his work on the Reservation could not proceed satisfactorily unless he disguised his sources. Also by inserting informants he can prevent his statements from sounding like tribal generalizations. He is primarily concerned with a study of individuals, that is, a study of the physiological and psychological factors in the individual's internal and external environment which condition the individual's behavior and ideas.

apprenticeship of a shaman's assistant may last fifteen years, depending on his ability to memorize verbally and visually. A diagnostician's apprentice may be ready to practice in a few months. A shaman must not cut his hair and must be fully initiated into the tribe. Neither of these conditions is required of a diagnostician. These are the most important distinctions between shamans and diagnosticians. [C, E, G, P, B, c, d, f, i, m, o, t.]

In cases of sickness the diagnostician is called upon to give the cause of the sickness and to say what ceremony will cure it, and what shaman can give that ceremony. If the sickness is not serious, the diagnostician will undertake to cure it himself. The ability to diagnose is not inherited, but must be proved during an apprenticeship, and psychological abnormalities do not qualify an individual for this work. [E, B, K, t, i.]

The cause of a sickness is revealed when the diagnostician is in a trance, therefore diagnosticians must first prove their ability to trance and then serve an apprenticeship under a practicing diagnostician. From him they become familiar with his medicines and learn his songs, prayers, and short rituals. [C, E, P, t, d.]

From the point of view of the everyday life of the Indians, too much interest should not be centered upon the shamans and their ceremonies, which may take from one to two hundred hours according to the desire and especially the pocketbook of the patient. When it is realized that three hundred and fifty dollars will support a family of five in comparative comfort for one year [t], the cost of a "serious" sickness is also a serious financial burden upon patient, relatives, and friends because a nine-night ceremony will cost a minimum of eight hundred dollars. A Night Chant cost t fifteen hundred dollars, and A paid a similar amount for his Mountain Chant. On the 25,000 square miles of the Reservation, it is doubtful if the "40,000" Navaho hold more than thirty of these nine-night ceremonies between the first frost and the first thunder.

Before proceeding further, it should be stated that the writer did not use an interpreter. One trial with a friend who "knew Navaho before he could speak English," demonstrated that it was impracticable. There is a curious concentration on the interpreter, and toward him each person is oriented. Notes taken on such a conversation resemble interchanges of telegrams. An interpreter can get parcels of specific information but the presence of a third person blocks the development of a personal conversation. And it must be understood that the writer did not "interview" an Indian. The writer gave as much information as he received. In other words he "swapped" white men's dreams, visions, trance material, superstitions, customs, rituals, and certain "treatments" commonly used by white doctors.

The following is a preliminary description of the three diagnostic techniques and a discussion thereof.

The first description is a paraphrase of E and P. P is a practitioner of motion-in-the-hand, whose father was a shaman and whose brother is a stargazer [t]. The man with motion-in-the-hand enters the hogan of the patient. Friends and relatives are present and the sickness is discussed. (These discussions are important in order to estimate their effect upon the prognosis.) The diagnostician seats himself facing the patient. He closes his eyes. He holds out his arm. He thinks of all the possible causes of the illness. When the "correct" cause "comes to his mind," his arm involuntarily shakes.²

When the diagnostician's arm has shaken, he lowers it. He then tells the cause of the sickness to the patient. Sometimes it is necessary to locate where the sickness is in the body. When his arm is extended toward the "correct" part it will shake. This is a skeleton of the procedure. Other details should be noted which vary with each diagnostician. He smooths the sand between himself and the patient, and sits down. On the sand he makes signs. From one of his buckskin or calico bags, he takes out reeds, or stones, or sticks. He may paint them in various designs with colored clays. He orders these on the sand in front of him. He may sprinkle them with corn pollen or corn meal. He may arrange on the ground certain stones or arrow-heads which he has previously prayed or chanted over. He holds in his extended hand a special stone, pollen, object, or corn meal. He may chant or

² Washington Matthews (AMNH-M 6, 1902) relates in his translation of the myth of the Whirling Logs (par. 722) that the visionary or prophet "fell upon the ground in a fit" when a Fringe Mouth and a goddess entered in masks. "The yei dragged his shaking body to the north of the central fire, and laid it, head to the north, face to the east. They rolled up the pictured cloud and laid it away on the shelf. At the same time the two divinities whose entrance caused the convulsion, departed." The inference seems to be that the god and goddess cast a spell on the visionary which was made manifest by involuntary shaking.

In paragraph 491-494, Matthews describes the procedure of the Night-Chant: "He [the patient] has a single breath-feather, taken from the shoulder of an eagle, tied in his hair. As soon as it is tied on he begins to tremble violently (or should tremble) as if under the influence of a hypnotic spasm . . . When the gods [Indians impersonating gods] leave for the last time the patient ceases to be convulsed, rises, and leaves the lodge.

"This rite is not only therapeutic but diagnostic, in a mythic sense. If the patient is seized with trembling, which is usually the case, the shamans say they know the malady is caused by the gods casting a spell on the patient; but if he is not thus seized they must seek some other cause."

Based upon P's description, one might make the assumption that the diagnostician with motion-in-the-hand can call forth a spell (trance-state) from the gods, during which the gods will make known to him which one of many possible diagnoses in his mind is the correct one.

pray. Then with his arm outstretched he closes his eyes and enters a trance state. Through the mind of a man with motion-in-the-hand runs a series of visualizations of the illness and of the cause of the illness, whereas the listeners receive auditory manifestations. These men believe in their ability to diagnose, because the trance-state seems unusual and real, the more so in that the visions come to them when they are oblivious of external stimuli. Such visions carry the usual conviction of truth. The reason that men like C and E failed in their attempts to become diagnosticians, appears to be that they could not withdraw sufficiently from conscious awareness to allow any stream of unassorted ideas to pass through their mind, or for a picture to form itself. In a recent case of sickness, P, by motion-in-the-hand, diagnosed the causes to be maltreatment of an eagle and neglect to bury some one properly. The patient replied that, sixteen years before, a man had trapped an eagle and given it to him. He had held the eagle under his feet while pulling out the feathers. The eagle had bled. [It has been often recorded that eagle feathers are used ceremonially, but legends state that the feathers must come from a live eagle and the eagle must not be harmed or remain in captivity.] Eight years ago the patient said he had buried a man who was not properly clothed, and he had not properly prepared the grave. It is important to note that if an Indian is over forty years old, the probability is that he has handled a live eagle and in so doing he has maltreated it. Secondly, the ritual of burying is so complicated that no Indian is likely to say that he has complied with all requirements. These, then, are diagnoses almost sure to be accepted by the patient. And such diagnoses are commonly used by "mediums" among white men who describe the person who is communicating a message in such general terms that members of the audience can readily supply specific details and identify the person as a friend or relative. These comments tend to show that this diagnosis was not done by means of a trance. I am not prepared to deny this. A brief critique of P is relevant. This man is approximately fifty years old, is married, has three children and is a university graduate. He is of medium height, stout, and careless about his clothes. He is readily fluent in speech, both Navaho and English. This deterred me from asking questions which would give him a chance to expand his answers. For example, I suspected that if I asked him what a man with motion-in-the-hand did when called to diagnose, he would reply with a description of what he himself did, including therein all that he had ever seen or heard from other diagnosticians as well as stargazers and listeners. He watched me closely and was sensitive to my reactions. This confirmed t's warning that he would tell me what he thought I wanted to hear. The result was that I increased my attitude of

indifference and asked specific questions. Shifting the conversation from one phase of diagnosis to another, or from one type of dream to another type lessened the chance of his manufacturing an answer. Nevertheless some suspected dramatic fictions were deleted from memory before his conversations were privately recorded. He takes an active part in the Mountain Chant dances. His levity does not extend to his work. Occasionally in a diagnostic trance he has seen a man or woman, but too vaguely to identify them. This vagueness of identity is characteristic of the controlled white man's trance, where human figures are invariably generalized and impersonal. The diagnostician assumes that the man or woman of the trance has caused the illness of the patient by witchcraft, and it is therefore important to identify this person. With the help of the patient, family, and friends, this usually is not difficult. Some believe that when the patient by means of a ceremony is freed from the witch's spell, this influence will return to the witch and cause him or her to be sick. [P,i.] P states that twice he has had the patient get well and the bewitchers have died within ten days, and in a third case death has come after a longer period, "the bewitcher usually dies of heart trouble and generally from a hemorrhage." If true, these should not be dismissed at once as coincidences. Psychological phenomena produce in the Indian extensive physiological affects, as they do in the white man.

The technique of the stargazer as given below is a close paraphrase of E's description and corresponds essentially to those of P and t who has a moving picture of part of the procedure.

A man is sick. A stargazer is called in. He comes into the hogan.³ The patient is there. Others are there. He talks to the patient and others. They discuss the illness. The fire is put out. The stargazer chants, then he says, "Everyone must close his eyes. No one must move or speak. Everyone must concentrate on the illness and try to see something." The stargazer takes a man from the hogan, and walks away some distance. He performs movements with his body. Any horses or sheep are frightened away. When there is no noise, the stargazer places a crystal or stone on his hand. He chants. He prays to the Gila monster. He does not pray to a lizard, but a lizard beyond the lizards, a larger one. Then the stargazer holds out his arm and hand in line with the moon or some star, and gazes unwinking at the crystal. Soon he sees something. He closes his hand upon what he has seen in the crystal. Also there may seem to be a line of light which is "lightning" from the star to the crystal or to the ground around him so that the

³ Cosmos Mindeleff, *Navaho Houses*, BAE-R 17: 475-517, 1898.

ground appears light. The stargazer sees the hogan and the sick man, even though his back is turned to it. [P asserted, without being questioned, that when the patient was seen in a trance he was naked, whereas in reality the patient was sitting fully clothed in the hogan. This is a familiar phenomenon of white men's trance imagery.] He sees a man, or a bear, or a coyote, or perhaps the head of a coyote, or perhaps the bear is biting the patient. Then he goes back to the hogan. The fire is lighted. He asks what the others have seen. This is talked about. He tells what he has seen. Maybe it is a man. Maybe the man is a witch and is making the illness. He must find out who the man is. Maybe it is a coyote. The stargazer puts marks on the floor of the hogan. He lays down a handkerchief. He lays a piece of turquoise, maybe a special stone, maybe a bit of pearl, on the handkerchief. He makes a bag of the handkerchief. He chants and prays. He gives the bag to a man. He tells him to go in a certain direction until he finds a coyote track. He must see how fresh it is, what the coyote was doing, what direction he went. He must open the bag and lay it on the tracks and carefully arrange it in order. Then he must return to the hogan. If the coyote track led away from the hogan, the patient will get well. If the illness is serious the stargazer will prescribe a ceremony and the shaman who can give it.

The frequency of such remarks as, "If the coyote track led away from the hogan, the patient will get well," is not known. One is inclined to believe that the Indians are well aware that the track must inevitably lead away from the hogan but, like white people when sickness is present, the impulse to think for the best is dominant.

The third group of diagnosticians, the listeners, apparently are less common on the Reservation, though the Winds, as bearers of messages, are frequently mentioned in the Chants and Origin Legend (Washington Matthews). Their methods resemble the stargazers except that, when they leave the hogan and take up a position, the diagnosis which comes to them is auditory. [t,P,E,i,d.]

One other phase of diagnosis should be mentioned; a case of a woman with-motion-in-the-hand ascertaining what ceremony would cure her own sickness. At A's Mountain Chant, t and I heard a chant going on in the "medicine-hogan" on the last afternoon of the ceremony. We tried to enter, as did some Indians, and all of us were told not to interrupt it. We learned that a certain woman with-motion-in-the-hand was diagnosing. Three days later, t asked her to tell him about it. She said that earlier in the summer with a group of Indians she had gone to California under contract with a motion picture company. One day the director asked them how they liked

the meat which he had given them the previous night. He said it was bear meat. Since the bear is sacred to the Navaho, they were greatly disturbed. She tried to vomit but it was too late. Later when she came back to the Reservation she had severe rheumatism. The cause of her illness (eating bear meat) was obvious to her, but she did not know what ceremony would cure it. The six shamans at A's Dance agreed that she should come into the hogan and they would assist her by chanting. During the last three years she had lost her ability to diagnose by motion-in-the-hand and she was uncertain that she could do it. She seated herself in the hogan naked above the waist. She held out her arm. After a few minutes everything went black and she knew nothing. Then she saw two of the Yei gods, who appear in the Night Chant, and she knew that she would never completely recover from her sickness until a Night Chant was held for her.

This illustrates an important responsibility of the diagnostician; namely prescribing the proper ceremony and sometimes naming one or more shamans who can give it. In the case just cited, the proper ceremony was obtained by a trance but if the sickness resembles a case which the diagnostician knows was cured by a certain Chant of a certain shaman he will prescribe these to his patient. [C,E,P,t,i,B.] In the earlier days of the tribe many Chants existed, more than sixty according to that distinguished authority, Father Berard Haile, but most of these are now forgotten.

Recommending a ceremony is obviously less difficult at the present time and for the most part the Night Chant, the Mountain Chant, the Shooting Chant, the Bead Chant, and the "War Dance" suffice for the various physiological and psychological disturbances.

From the foregoing, the trance appears to be the only constant of Navaho diagnostics. Comment is therefore relevant because the word "trance" is vague and tainted in western civilization. A relative idea of the trance may be gained from the following sequence of manifestations which show the participation of increasing increments of consciousness: dreams, certain hallucinations and delusions, hypnagogic visions, certain involuntary visions, trances, phantasies, and day-dreams. The previous description of a woman's self-diagnosis might be interpreted as an involuntary vision. Having been present when she described it, I find reason to believe that she exaggerated. The blackness, the sudden vision, suggests loss of consciousness. Anything revealing itself under such conditions would be more highly valued because of its mysteriousness than in the usual controlled trance during which the diagnostician is aware of the equilibrium of his body. On the other hand, all my information concerning listeners seems

to imply the occurrence of mere akoasms^{3a} which were translated by the mind into plausible "hunches." Listeners are uncommon but presumably some exist who receive verbal messages. It should be noted that none of the diagnosticians lie down when trancing. Hypnagogic visions are thus forestalled, but there is tense concentration upon the patient and his sickness. Innumerable have been the attempts to elucidate trances. Two references are here sufficient: one from the Irish Free State, "The Candle of Vision," by "AE"; and one quotation from Tibet,⁴

May the consciousness undistractedly be kept in its natural state;

Grasping the true nature of dreams, may I Train myself in the clear Light of Miraculous Transformation . . .

Such references are unsatisfactory, to say the least. The work of Jung must therefore be introduced. His experiments began twenty years ago, and one fragment of a trance has been published in *Two Essays on Analytical Psychology*.⁵ A brief recapitulation of his work is necessary, the more so since it contains important implications in the field of anthropology. Jung's concept of the collective unconscious was assumed in order to interpret dream material of 1909. This material contained images which are found in myths, and images remote from the experiences of the patient. Therefore the "unconscious" was divided by Jung into the personal unconscious which contained "all those psychic contents which are forgotten during the course of life, and all subliminal impressions, and perceptions which have too little energy to reach consciousness, and all psychic contents incompatible with the conscious attitude"⁶ and the impersonal (collective) unconscious, the contents of which "appertain to a group, nation, or mankind and are not acquired during the life of the individual".⁷ That these impersonal contents occurred in the dreams of an individual at a certain moment in a certain situation seemed to indicate that their interpretation would be of value to the patient. Familiarity with myths thus became the first requisite, and

^{3a} Dr. William A. White in his *Outlines of Psychiatry* (Nervous and Mental Disease Publishing Co., Washington, 1929), defines on p. 78 the word "akoasms" as follows:

"Auditory Hallucinations—When these are elementary, that is, are largely sensory in character with few associations, they are known as akoasms. Such would be simple sounds, as buzzing, crackling, ringing, and the like. The more complicated hallucinations which are conceived by the patient to be "voices"—verbal auditory hallucinations—are known as phonemes."

⁴ From W. Y. Evans Wentz, *Tibetan Book of the Dead*, quoted by I. A. Richards in his *Practical Criticism*, p. 235, 1929. Harcourt Brace & Co., Publishers.

⁵ Pp. 246, 247. Dodd, Mead, 1928.

⁶ *Contributions to Analytical Psychology*, 259, 1928. Harcourt Brace & Co. Publishers.

⁷ *Ibid.*, 260.

subsequent interpretation was aided by comparing one myth with others especially where there was a duplication of symbols and symbolic acts. Quite properly there is and will continue to be a controversy over the interpretation of such material, but no one denies the existence of this imagery in the unconscious of men. When a man with-motion-in-the-hand describes trancing it is difficult to distinguish his meaning from Jung's words: a vision, which by intense concentration, was perceived on the background of consciousness, a technique that is perfected only after long practice⁸

He also agrees with C and E that not everyone can succeed, and the "long practice" is similar to the Navaho's apprenticeship. Jung has remarked that if once the resistance to free contact with the unconscious can be overcome, and one can develop the power of sticking to the phantasy, there the play of images can be watched, and the creation of myths takes place. This requires the same concentration which P describes as being necessary for the diagnosis of sickness. Furthermore Jung's material has called forth the following conclusions:

I have to declare that these facts are psychic factors of indisputable effect. They are not the discoveries of an idle mind, but definite psychic events. They obey absolutely definite laws, and have their own law-determined causes and effects, which accounts for the fact that they can be demonstrated just as well among the most varied peoples and races living today as among those of thousands of years ago. As to what these processes consist in I have no theory to offer⁹

These statements contain the implication that medicine, magic, or religion may have many independent origins, and it is with renewed critical interest that one looks back upon such statements as G. Elliot Smith's, it was not until August 1918 that Dr. Rivers admitted the Egyptian origin of civilization—after three years of discussion and critical examination of the evidence.¹⁰

Diagnosticians have a god of their work, to whom they pray. [E] It is the Gila monster, or more accurately, the spirit of the Gila monster. E says there is no ceremony given over to this spirit, but mention of it is made in several chants and he thinks there is a Gila monster mask used in one of the dances. A man may hear the voice of the Gila monster. White men have no illusions about the spirit of this lizard but their delusions about the reptile itself, based upon "observation," cover a wide range of imaginative zoology. "Its teeth are hollow and are filled with poison." "It ejects poison into its mouth." "If turned on its back its bite is not poisonous." "It has no cloaca but evacuates through the mouth," etc. Many believe it is not poisonous.

⁸ Two Essays on Analytical Psychology, 246.

⁹ *Ibid.*, 246

¹⁰ W. H. R. Rivers, *Medicine, Magic and Religion*, 90, 1924. Kegan Paul, Publishers.

Diagnosticians unlike the shamans may practice throughout the year but with certain limitations. Since these men and women do not work with masks or other representations of the gods, the use of which is forbidden between the first thunder and the first frost, it is probable that their work is but little curtailed, although they cannot mention the sacred names of the bear, snake, and lightning except in the winter when these latter are "asleep and cannot hear."

During any discussion of diagnosticans, it should be borne in mind that individual Navaho also have "home remedies." If these fail or the element of fear is present, the patient seeks the advice and ministrations of a diagnostician. These minor sicknesses need not involve a trance diagnosis but merely dispensary and outpatient treatment. However much space is here allotted to secondary factors in the Navaho treatment of sickness, it is assumed that only on rare occasions does a patient escape from a shaman or diagnostician without at least one sweat-bath, emetic, or cathartic. These are the more efficacious because Indians are apprehensive of physical ills and are not in the habit of delaying treatment. This comment will be challenged immediately by almost anyone who has talked to a white Reservation doctor or nurse. These latter show unmistakable signs of exasperation with the Indian and the reasons which they give speak for themselves: (1) Indians frequently do not come to a hospital until all efforts of shamans have failed. (2) Indians stop coming for treatment after preliminary improvement. This is especially common with trachoma cases. (3) Indians seriously sick and not improving will often be removed from the hospital by friends and relatives and taken to a shaman. (4) In view of the fact that incision is not practiced by the tribe, it is difficult to persuade an Indian to have an operation.

Sometimes a diagnostician will formulate his own ideas of physiology and how his medicines work which must be most convincing to his patients and enhancing to his reputation. P, a graduate of Haskell, has a theory that sickness is very often in the heart and that it spreads to the head and all parts of the body. It may be in the stomach and may spread to the head. Similarly, he says his medicines will permeate through the body and will cure everything including pneumonia, tuberculosis, gonorrhea, and heart trouble. First he gives an emetic which empties the "stomach and lungs," then he gives a cathartic. He collects his herbs from special places and all but a few he boils and administers internally through the mouth. For burns and sores, he has some moss which he burns and applies to the damaged area after which it is covered with tallow. Sometimes it is the habit to cover sores with the sap of resinous trees. For sprains and lameness certain roots are used; these may be boiled and applied, or they may be chewed

by the diagnostician or patient and together with saliva rubbed into the skin. He displayed a carefully wrapped object which looked like a dried root. He said this was his most powerful medicine. He had had it for a long time and gave certain patients a few particles of it boiled in water. It would cure anything. He said it was the penis of a buffalo. Whether it was or not, I could not determine, but several Indians said that a buffalo's penis was known to be "strong medicine."

Even though these medicines may or may not be sung over, their association with other objects in the possession of a diagnostician would make them unusually powerful, and in addition P said he had collected special ones from particular places. The writer does not know whether certain herbs have become standardized remedies and whether an herb used for sore throat must always be collected near a spot struck by lightning. Such prescriptions undoubtedly vary with each diagnostician unlike the rules for gathering ceremonial medicines. Nor was it ascertained how much the shamans trespass upon the diagnosticians' field of short chants and prayers for minor sicknesses. If a patient asked a shaman for medicine to cure a stated illness, no doubt the shaman would give it, but apparently he has no technique for discovering what the illness is or how it was caused. A diagnostician, however, may identify a certain sickness with the malevolence of a certain god, in which case the ceremony would be prescribed in which this god is prominent. It was not determined how many names there are for sicknesses nor the nature of the names. P's letter to her relative said that a man with-motion-in-the-hand had diagnosed their cousin's pain in the side as "air and devil sickness" and had prescribed a Night Chant. Presumably, diagnosticians invent names for sicknesses and probably different gods and spirits can cause the same sickness.

There remain four other functions of diagnosticians; oneiromancy, advice about unusual incidents, provisions for warding off dangers, and help in the recovery of lost possessions.

The first three of these categories may be accompanied by physiological disturbances, which occasionally fall within the conditions defined by Dr. William A. White as "catastrophies" and "disasters."

Diagnosticians are called upon to cure sickness caused by dreams or to prevent sickness predicted by dreams. Indian informants did not hesitate to distinguish good dreams from bad dreams, nor were they reticent about telling their dreams. P said that if the dream is not serious, the individual may pray at dawn in his doorway with or without some special stone before him which has been chanted over for this purpose by some diagnostician. He may pray to the sun-god (whom C considers the "highest god"); or he may pray to a particular god or spirit of some animal made manifest by the

dream. If the dream be more serious, he must go to a diagnostician who will use his chants, and minor rituals, and more powerful objects and prayers. If the dream be still more serious, the diagnostician will advise a ceremony by a shaman. The writer wishes to stress the importance which his informants gave to their dreams as factors in their everyday life. A discussion of these dreams cannot be handled within the confines of this report. Suffice it to say that dreams carefully interpreted with related conscious material are indispensable for an understanding of individual Indians.

Another function of the diagnostician is the warding off of dangers. In addition to his necklace and the chamois bag containing special stones and annually renewed pollen which Navaho acquire at a certain time in their protracted initiation, P carried additional bags containing particular stones and pollen. One stone was four inches long, flat, narrow, black, and smooth. The bag was made to fit it. Part of it was supposed to resemble a horse's hoof. This stone had been sung over and protected him from being killed by a man. Some Indians carry an arrowhead for this purpose. Both he and his wife were very much afraid of lightning, in fact once he had nearly been struck. Each had a ceremony held to protect them from lightning and each carried a piece of white shell and a piece of turquoise strung together on a cord with particular knots. This also had been sung over and if a storm came, he could go outside his hogan and the lightning would proceed no further. The different kinds of lightning have often been recorded as well as the belief that when the Thunder-bird shoots his arrow it is straight lightning whereas the Chief Snake makes zigzag lightning. P stated that an object which protects from lightning also protects from snakes and so long as he carried his shell and turquoise a snake might enter his hogan but it would not bite him. Thus most of the stones which are carried are aniconic and are not fashioned or marked in relation to their use.

A diagnostician may also be called in to protect a hogan from lightning. P called my attention to a bunch of mistletoe over his door and twigs from species of trees at the south, west, and north of his hogan under the roof, which were placed there during a chant to prevent lightning. He protects other people's hogans from lightning by chanting, praying, and setting upright in the hogan to the east, south, west, and north an arrowhead or a small stone shaped like a miniature menhir. He then chants and prays. His sets of arrowheads and stones are of four different natural colors. A black arrowhead is placed to the east, a blue one to the south, a yellow one to the west, and on the north side a white one is set up. In the same bag with these stones were more than thirty others of miscellaneous shapes and colors. The innumerable uses which these may serve were not recorded.

Diagnosticians are called in about lost money, horses and sheep, and in fact about lost children.

A child wandered from X and was lost. The advice of a shaman,[N], was sought. His advice was without results. Stargazers, and men with-motion-in-the-hand were asked to advise where the child was. Each day search parties went out as directed. On the seventh day a listener was called. After a preparatory ritual of chants and prayers, he went to the top of a near-by hill. It is uncertain whether he heard voices, or sounds in the air coming from a certain direction. He returned to the hogan, however, and said the child was in a specified canyon one mile from its mouth. A search party failed to find the child, but went again, and this time found the child at a distance of about two miles. This eight-day search was remembered by t, who had inspected the spot where the child was found and decided she had been cuffed to death by a bear and cubs.

Two incidents have been described to me where diagnosticians recovered lost money, and in another case, a lost horse. These stories contained too little verifiable detail to be worth repeating. It may be expected that because of a little experience in such matters and a training which gives more than average awareness, these diagnosticians would naturally be consulted. Probably their work covers a still wider range of the daily life of the individual.

Rituals and words, spoken or sung, to cure sickness caused by dreams, witches, and the spirits of animals, gods, and dead men have been tenaciously preserved by the Navaho and ably recorded by anthropologists. Further research of these rituals and beliefs lies in the field of racial psychology and involves a study of the conscious and unconscious processes of individuals. Non-academic psychology necessarily remains affiliated with hospitals and it seems probable that an anthropologist will obtain his most dependable information through the investigation of psychopathic cases and organic disorders, because so many of the latter are psychogenic, and because a sick man is invariably less reticent than a man who is not sick. Work in this field seems to fall into three phases: the collection of data, including the investigator's contact with informants for which no university degree can ever prepare a man; the evaluation and interpretation of material which is conditioned by the investigator's understanding of his own psychological processes; and lastly the generalization of conclusions, which is the most difficult phase since it involves the method of successive approximations, which Archimedes aptly called the method of exhaustion. One adequate lead-in for such research, the work of diagnosticians, is outlined in this report.

CENTRAL American insurrections may have some purpose after all. It was a revolution which prevented John L. Stephens from carrying out his diplomatic commission under President Van Buren in 1839. Instead he turned to exploration, and his four volumes on the Maya ruins have been the main incentive which stimulated the interest of other explorers and investigators. The greatest of these was Alfred Percival Maudslay.

Dr. Maudslay was born on March 18, 1850, at Tunbridge Wells, the son of Henry Maudslay of Woolwich, a famous English engineer and inventor, "one of England's finest craftsmen." He married Anne Cary Morris, of Morristown, New Jersey, a granddaughter of Gouverneur Morris, a member of the Constitutional Convention. She died in 1926. In 1928 he married Mrs. Purdon, of Fownhope, Hereford, who survives him. Surrounded by his flowers, Maudslay died on January 22, 1931, at his beautiful estate, Morney Cross, Fownhope, near Hereford, on a slope above the Wye river commanding a view of Hereford Cathedral and in the distance the Black mountains of Wales.

His education began at Harrow in 1863 and continued at Trinity Hall, Cambridge, from which he was graduated in 1872, where he gained a second class in the Natural Sciences Tripos. At school he tells us he was called "a barren tree" and "an arid desert." The untruth of these statements was soon shown.

Immediately after graduation, with a "great desire to see a tropical forest," he set sail with his brother for the West Indies. He visited Panama and traveled through a part of Guatemala, sailing from Acapulco to San Francisco. On a stage trip to the Yosemite he met Miss Morris, who later became his wife. He was in New York when Grant was elected, and came to Boston to see the smoking remains of its great fire.

In 1873 he visited Iceland. It was about this time that he gave up, on account of health, his first ambition to study medicine. The next year he again visited the West Indies with the intention of growing tobacco in Jamaica. A rigid quarantine compelled him to continue to Trinidad, where he entertained the idea of starting as a cacao planter. A fellow passenger to Trinidad was the newly appointed Governor, William Cairns. To fill a temporary vacancy he accepted the appointment as His Excellency's Private

¹ I am under obligations for aid in writing this memoir to Mrs. Arthur Laughton, H. J. Brauhnoltz, Henry N. Sweet, Ingersoll Bowditch, and an obituary note by L. C. G. Clarke.

Secretary. The Governor soon left, never to return, and Maudslay followed him to London. Maudslay's love of the tropics induced him to continue as Secretary to Sir William Cairns, this time in Queensland.

In 1875 he joined the staff of Sir Arthur Gordon in Fiji. For the next five years he served successively as Acting Colonial Secretary of Fiji, Deputy Commissioner for Tonga and Samoa, and as Acting Consul-General for the Western Pacific. This period of his life is delightfully covered in his last book, *Life in the Pacific Fifty Years Ago*. His success as a colonial administrator was great. His kindly and sympathetic nature made him an ideal type to treat with the natives, and his name came near ranking very high in the history of the Pacific when he completed negotiations with the Samoan chiefs for the unreserved cession of Samoa to Great Britain. Unfortunately, a previous agreement between his country and Germany prevented any advantage being taken of his understanding with the Samoans.

His fame, however, which might well have rested on colonial administration, came from his archaeological investigations in Central America. He writes:

The principal object of my first journey (to Central America) was not geographical or antiquarian research, but a desire to pass the winter in a warm climate. I had made no previous study of American archaeology, but my interest had been aroused by reading Stephens' account of his travels, and I started for Guatemala in the winter of 1880-1, in the hope that I might reach some of the ruins so admirably described by him. My success in this first trip was so much greater than I anticipated, that I returned to pass another winter in the country, provided with a larger photographic camera, and generally better equipped for the work.

This first trip in 1881 was the first of seven undertaken from 1881 to 1894, on the last of which he was accompanied by Mrs. Maudslay. He conducted these elaborate expeditions entirely at his own expense, together with photographing and casting. He writes:

I was at a loss to know how best to make use of my notes and collections, when Mr. Godman kindly offered to relieve me of all the expense of printing and the reproduction of plates, and to publish my work as an addition to the "*Biologia Centrali-Americana*," if I would supply all necessary photographs, drawings and plans, and a written memoir.

From this happy arrangement we have the four monumental volumes of plates and four of text covering Maudslay's archaeological work. These volumes have never been equalled in the excellence of the plates, the accuracy of the plans, and the detailed studies of the architecture and the carefulness of the drawings of the hieroglyphic inscriptions, done under Maudslay's direction by Miss Annie Hunter.

No one who has not traveled in the Guatemalan bush, and has not had to deal with an outfit of mules and the meager supply of adequate labor can well appreciate half the difficulties encountered by an explorer in this region over forty years ago. There is very little mention of these terrific handicaps in Maudslay's text, and yet they were there. In those distant days there were no "tropical plates" and other aids devised for the explorer in warm countries. The search for chicle in those regions had not begun, and trails, however poor, had not been made stretching in a network over the country. Only on his last trip, made with Mrs. Maudslay and delightfully described by them in *A Glimpse at Guatemala*, is there a personal picture of his travels. His great modesty is shown in the title of the book and in the last chapter, which is headed "Conclusions (?)."

It is needless here to enumerate the ruins he visited, several of which he made known to the scientific world for the first time. His plans, drawings, and photographs of Palenque, Quirigua, Chichen Itza, and many of the lesser sites have never been superseded. He gives grateful thanks to H. W. Price, who aided him at Palenque and Quirigua, and to Mr. Henry N. Sweet, who was with him at Chichen Itza. Coming down the Usumacinta river, he was the first archaeologist to reach the ruins of Menche (Yaxchilan), anticipating by a day or two the arrival of Charnay, who came up the river. I know of nowhere in scientific exploration where magnanimity is better shown than in his attitude to Charnay, who hoped to "discover" the ruins in the name of his patron, Pierre Lorillard. Let Charnay describe the meeting.²

We shook hands; he knew my name, he told me his: Alfred Maudslay, Esq., from London; and as my looks betrayed the inward annoyance I felt: "It's all right," he said; "there is no reason why you should look so distressed. My having had the start of you was a mere chance, as it would have been mere chance had it been the other way. You need have no fear on my account, for I am only an amateur, traveling for pleasure. With you the case of course is different. But I do not intend to publish anything. Come, I have had a place got ready, and as for the ruins I make them over to you. You can name the town, claim to have discovered it, in fact do what you please. I shall not interfere with you in any way, and you may even dispense with mentioning my name if you so please." I was deeply touched with his kind manner, and I am only too charmed to share with him the glory of having explored this city. We lived and worked together like two brothers, and we parted the best friends in the world.

It was from this site that Maudslay took out several magnificently carved stone lintels which are now treasured possessions of the British Mu-

² *The Ancient Cities of the New World*, 435-6. London, 1887.

seum. At many of the sites he visited he took moulds of the bas-reliefs, and even of entire monuments by means of paper squeezes and sometimes of plaster. These were cast and presented to the Victoria and Albert Museum. After lying, entirely neglected, in storage for thirty years, and mainly through the energy and persistence of Captain T. A. Joyce, in 1923 they finally found a most suitable setting in the British Museum where they, together with the original lintels, and his other gifts, fill a hall suitably called "The Maudslay Room." This is the only hall in the entire Museum ever named for a man during his lifetime, and where the entire contents represent the work of one individual. Maudslay's casts are also to be found in the Trocadero at Paris, and in several American museums.

In 1891, through the initiative and aid of the late Charles P. Bowditch, another great patron and scholar of Maya research, the Peabody Museum of Harvard University had a ten year concession with Honduras to explore at Copan.³

In 1893-94, owing to the death of Mr. Owens, one of the archaeologists, no one was sent to the site by the museum, and Mr. Maudslay kindly consented to serve as its representative. In previous visits he had already examined the site, giving letters to the stelae discovered by him. While there in 1893-94, he completed the moulds of the inscriptions omitted from his earlier series and moulded others found by the museum.

Early in his studies of the Maya ruins, Mr. Maudslay was impressed with the great importance of the hieroglyphic inscriptions. He took special pains to photograph and mould, wherever possible, the hieroglyphs. From these Miss Annie Hunter made the famous drawings of the inscriptions which have been a boon to all students of this subject. With a very few exceptions, careful checking has failed to find inaccuracies in this remarkable work.

Cyrus Thomas in 1882 showed the true order of reading the inscriptions. Maudslay evidently did not know of this, as he wrote in 1886:

I am of the opinion that the tables of hieroglyphs should be read *in double columns, from left to right and from top to bottom*; but I am not in this paper able to give fully the evidence on which this opinion is formed.

In 1890, he speaks of the Thomas paper of 1882 and writes:

I myself came to the same conclusion from an entirely independent examination of inscriptions from Quirigua and Copan.

³ In looking through the long and intimate correspondence between Mr. Maudslay and Mr. Bowditch, I find that Mr. Maudslay's advice was sought at every point in the plans and outfit of the early Peabody Museum expeditions to Copan. Furthermore, Dr. Gordon and Professor Saville, leaders of these trips, took over many of the Maudslay personnel.

As early as 1886 he recognized the formula of the beginning of many of the inscriptions, when he writes:

One of the most interesting points which I have noticed is that all the inscriptions which I have reason to believe are complete from the commencement, are headed by what I shall call an initial scroll (the type of which is permanent throughout many variations), and begin with the same formula, usually extending through six squares of hieroglyph writing. The sixth square, or sometimes the latter half of the sixth square, being a human face, usually in profile, enclosed in a frame or cartouche.

Part 2 (vol. 1) of the *Biologia* appeared in 1890, and on plate 31 he has a famous drawing, placing side by side the first glyphs of several inscriptions. These he names the "Initial Series" for the first time, and notes the difference between the inscriptions with numbers and those without, noting that the number in the first glyph is almost invariably nine. It is indeed probable that it was Maudslay who suggested to Goodman the possibility of the face numerals which Goodman later worked out. Maudslay also recognized the rosette form for twenty, and the double number on the Uinal glyph of what, later, was called the Secondary Series. He writes, in part, as follows:

It will be found that many inscriptions are preceded by what I propose to call a "heading." . . . This heading is very frequently followed by what I propose to call the "Initial Series" of glyphs. There are two principal forms in which this initial series occurs. One is a series of six glyphs, each glyph composed of two characters—usually two heads without any numerals attached to them; the other is a series of six characters occupying six or a less number of glyphs, each character having a numeral attached to it. Each character in the single series is usually identical with one of the characters from the glyph in the corresponding position in the double or two-character series. In some cases there is a mixture of the two series. The initial series is to be found in inscriptions throughout Central America.

Not content with his own imperfect knowledge of the hieroglyphs, he was eager to find someone who would make the Maya inscriptions his life work. In a letter to his friend and fellow enthusiast, Mr. Charles P. Bowditch, dated at Guatemala, December, 19, 1892, Mr. Maudslay tells of his journey across the United States, first visiting the Chicago Fair and then San Francisco. He continues:

I think I told you that for some years I have been corresponding with a Mr. Eisen in San Francisco. He was away in Mexico when I first arrived but I saw a good deal of his partner, Mr. Goodman, and it is he, apparently, who has done most of the work at the inscriptions and not Mr. Eisen. It seems to me that he has really made some advance, and it is principally in the direction in which I anticipated that discoveries would be made, that is, in the comparative study of the "Initial Series" which he

finds gives him a date. I was not able to make any careful investigation of his system but from what I can see it appeared to work out correctly and I have done my best to get him to publish his method and the calendars which he has worked out.

This visit to Goodman resulted in Maudslay urging him to come to London to see all the material gathered in the field. This Goodman did in 1895. He writes in the preface to the appendix to Maudslay's *Biologia*:

The appearance of this fragment now, in its unfinished state, is due to a request of Mr. Alfred P. Maudslay, who desires to have chronological tables . . . so that he may be able to refer to them during the course of publication of his magnificent work on the archaeology of Central America . . .

There is history attached to the printing of this fragment. Mr. Maudslay, during one of his visits to our coast, urged the importance of its publication upon some of the officials of the Californian Academy of Sciences, but . . . they could not clearly see their way to any excuse for assuming the cost of printing this little book. It remained for Mr. E. [F.] DuCane Godman and Mr. Osbert Salvin, of London, to invite the publication of it at their private expense, and to incorporate it, for all of its unworth, in their monumental work, the *Biologia Centrali-Americana*.

This is not the time and place to record the most important advances made by Goodman in the study of the Maya inscriptions. It is no doubt true, however, that to Mr. Maudslay and his work we owe indirectly the Goodman contributions.

The artistic side of the Maya carvings and bas-reliefs were of special interest to Maudslay. His analysis of the designs by colored drawings has been a unique contribution. Nowhere else do we find so clearly represented the intricate and confused designs of the Mayas. The drawings of the bas-reliefs at Chichen Itza and Palenque especially and those on the Copan and Quirigua stelae and altars are noted examples of Miss Hunter's careful work supervised at every step by Maudslay.¹ He also inspired Miss Adela Breton to spend many weary years copying the Chichen frescoes, and making reproductions of ancient maps of Tenochtitlan.

¹ A worthy tribute to the late Miss Hunter, which I feel sure Mr. Maudslay would have liked to have included here, was paid by Goodman, who undoubtedly saw her at her work in London. In his preface he writes: "The illustrations in these pages are by Miss Annie Hunter, who has done nearly all the drawings for Maudslay's series of publications. Her experience and artistic skill render her reproductions faultless. The certainty with which she can trace the glyphs of a nearly obliterated inscription amounts almost to divination. No mere perfunctory discharge of duty satisfies her; her whole soul is in her work, aquiver with anxiety to attain the best and truest result. Students who have not had an opportunity for comparing the mutilated originals with her perfect restorations will never know the full debt they owe this admirable artist."

His interest in maps—of which he had a large collection—shows clearly in that of the peninsula of Yucatan, which he published in his *Biologia*. It is a compilation, laboriously assembled from many sources, and still stands as the best map of this region. This interest in maps comes out very clearly in his definitive edition of the old Conquistador, Bernal Diaz. His translation of this masterpiece, published by the Hakluyt Society, will stand as his second monument. The voluminous notes show the research scholar. The numerous illustrations and the volume of reproductions of ancient maps of Mexico and the environs of the ancient Tenochtitlan are contributions of the greatest value to early Spanish-Mexican history.

Mr. Maudslay exceedingly disliked controversies, and he declined to take part in them even when his views were challenged. The much heralded claim of Dr. G. Elliot Smith of Asiatic influence in Central America and the presence of elephants in the Maya area only once drew his fire. In a long article in the *London Times* of January 14, 1927, headed "Elephants or Macaws? Asia and American Civilization. A New Discovery," Dr. Smith made use of some discarded drawings of Waldeck, made almost a hundred years ago, which were discovered in a Chicago library. They were fanciful drawings of elephants at Palenque. It seems evident that Waldeck himself had little regard for their faithfulness, as he did not include them in his published work. The concluding sentence of Dr. Smith's article reads as follows:

The definite settlement of the elephant controversy marks a revolution in ethnology.

This was too much for even peace-loving Mr. Maudslay, who had spent months at Palenque studying every carving and relief. He had compared all of Waldeck's published drawings with the originals and knew well their inaccuracies, and *he* had found no elephants at Palenque. Writing from Egypt, he sent the following letter to the *London Times*, which was printed on February 14, 1927:

I have just now seen in "The Times" of January 14, the copies of drawings by F. de Waldeck of Maya sculptures at Palenque, which have been recently found at Chicago, and Professor Elliot Smith's letter in the same issue. At this distance from home, and with no books to refer to, it is impossible to go into details. However, if any of your readers will compare Waldeck's drawings with the photographs and drawings in the Palenque volume of the "*Biologia Centrali Americana*" (Archaeology), or the casts from Palenque in the British Museum, I have no doubt they will be convinced of Waldeck's inaccuracy and the worthlessness of his drawings in support of Professor Elliot Smith's views.

From the time he left off active archaeological field work in 1894, until 1907, he usually spent six months in Mexico. For several years he was at Zavaleta, near Oaxaca, working a small gold mine which he had inherited. His last year in Mexico was spent at San Angel. During the later years of his life he traveled in the Balearic islands, Spain, Italy, and Egypt.

The list of his honors is a long one. In addition to being Honorary Fellow of Trinity Hall, he received the Hon. Sc. D. from Cambridge and the Hon. D. Sc. from Oxford in 1912, in which year he was the President of the Royal Anthropological Institute and the Chairman of the Organizing Committee and President of the International Congress of Americanists in London. He joined the Royal Geographical Society in 1884, and was an Honorable Secretary for several years. He was also a member of the Council of the Hakluyt Society. An Honorary Professorship in the Museo Nacional at Mexico City was something of which he was always proud. He also held Honorary memberships in the Société des Américanistes of Paris, the American Antiquarian Society, the American Academy of Arts and Sciences, and the American Anthropological Association, and was a corresponding member of the Berliner Gesellschaft für Anthropologie. In 1926 he received the Rivers Memorial Medal of the Royal Anthropological Institute. He was also a leading figure in many of the Herefordshire local scientific and philanthropic organizations.

He bequeathed his valuable Mexican manuscripts, books, pamphlets, and a very extensive collection of ancient maps to the British Museum, and his Fijian collection to the Cambridge University Museum. The invaluable Gouverneur Morris papers which he inherited from his wife were left to the Library of Congress, Washington.

Mr. Maudslay was a man who was fond of simple things. He surrounded himself with a garden wherever he happened to live—in Fiji, at Zavaleta, and at Morney Cross, where, during the last years of his life, he spent hours planning and planting, weeding and pruning his flowering terraces. His wide interests included a knowledge of embroideries and of old furniture, he was an excellent photographer, and a keen fisherman. Without exception, Mr. Maudslay's pioneer work in Maya archaeology is the greatest single contribution to this study. Inspired by Stephens, he, in turn, inspired many others to select the Maya field for research and exploration.

His aim was perfection, and his published scientific works show that his ideal was accomplished. As a scholar, he refused to be satisfied with hazy generalizations, and sought the truth. His gentle nature, his retiring disposition, and his great modesty were outstanding characteristics. He was without guile. One can often wonder as to his reactions to the modern scientific

expeditions with their aeroplanes and motors, their staff of secretaries, moving picture operators, and, most necessary of all, publicity agents. His own splendid accomplishments were unheralded in the press, and were generally unrecognized except by a few faithful friends and fellow archaeologists until toward the last twenty years of his life. Mr. Maudslay's work can never be equaled. During the last forty years, time and man have worked havoc with the Maya ruins. Priceless records have now disappeared, but many of them are permanently recorded in the monumental volumes of the *Biología Centrali-Americana*. And Maudslay's schoolmates at Harrow called him "a barren tree!"

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Dr. Alfred Percival Maudslay in "the living room" at the Monjas, Chichen Itza, Yucatan (Photograph taken by Mr. Henry N. Sweet in 1889. Copies of this negative were kindly furnished both by Mr. Sweet and by Mr. Braunholtz.)

GEORGE A. DORSEY

By FAY-COOPER COLE

GEORGE AMOS DORSEY was born at Hebron, Ohio, February 6, 1868. After completing the public and high schools he attended Denison College, Ohio. He graduated at the age of twenty, and twenty-one years later was awarded the LL.D degree from his *alma mater*.

After his graduation he attended Harvard University Graduate School, where he was awarded the Ph.D. degree in 1894. While still a graduate student he went to South America to gather collections for the Chicago World's Fair of 1893. Upon his return to the United States he became an assistant and instructor in anthropology at Harvard University. In 1896 he came to Chicago to accept a place with the recently organized Field Museum of Natural History. Two years later he was advanced to the position of Curator, which post he held until 1915. His boundless enthusiasm led men of wealth to endow expeditions to all parts of the world and under his administration the Department of Anthropology became one of the largest in the world.

Never content to be a mere administrator, he made many trips to distant lands and carried on extensive investigations, the best known of which are those relating to the Plains Indians. Following the publication of a diary of a world trip, he was commissioned by the Chicago Tribune to study the sources of emigration in Italy, Austria, and the Balkan states, as well as political conditions in South Africa and the Far East.

In addition to these many activities he found time to serve as professor of comparative anatomy in the Dental School of Northwestern University and also as associate professor of anthropology at the University of Chicago. During this period he published some seventy papers and several volumes dealing with anthropology. He likewise took an active part in the intellectual and social life of Chicago. He was twice elected as President of the Geographical Society and once of the Adventurer's Club. In the political campaign of 1916 he became an ardent champion of President Wilson and devoted a great deal of time and energy to the preparation of editorials for the Democratic National Convention.

With the outbreak of the World War he was commissioned a Lieutenant Commander in the United States Navy and was detailed as Assistant Naval Attaché at Lisbon. During the Peace Conference at Paris he served as advisor to President Wilson on Spanish problems.

Following the war, he served as correspondent for the London News and tried his hand as a popular writer. His love for science soon led him back to that field and he endeavored to make the findings of science available to and popular with the average man. After many discouragements he pro-

duced *Why We Behave Like Human Beings*, a volume which quickly became one of the best sellers, and which today has the greatest circulation of any modern book on science. This was followed by three volumes and a number of semi-popular articles on human behavior. At the time of his death he had just completed the manuscript of a new volume on *Civilization* which many competent critics pronounce his greatest work.

He was a member of many scientific societies in America and abroad and had received a number of honorary awards.

Few men in science have had such broad fields of interest; few have traveled so widely, and no one of our generation has done more toward popularizing science.

His death, which occurred March 29th, was sudden and entirely unexpected. Apparently in the best of health he was dressing for dinner when the end came.

All who knew him will feel a personal loss in the passing of a delightful friend.

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UNIVERSITY OF CHICAGO,
CHICAGO, ILLINOIS

DR. H. F. C. TEN KATE died at Carthage, northern Africa, on February 5, 1931. He was born at Amsterdam, July 21, 1858. It was the desire of his father, the eminent artist who bore the same given name, that the son follow his profession, to which end he became a pupil of the Academy of Arts at The Hague, where he was awarded the first prize medal for an anatomical drawing. But a visit to the island of Corsica, when a mere youth, with one of his father's artist friends, developed his innate roving disposition. After due preparation in the classics, he became a student at the University of Leiden in 1877, devoting himself chiefly to medicine and natural science. Two years later he went to Paris to continue his studies and to follow the courses of Broca, Quatrefages, Topinard, and other leaders of the French anthropological school. While still a student he wrote, with his friend J. Pavlovsky, a memoir on the skulls of decapitated criminals and suicides. In the fall of 1880 ten Kate went to Germany, where he studied successively at the universities of Berlin, Göttingen, and Heidelberg. Some time after his graduation in 1882 he followed his taste for traveling by journeying to the United States, and the adjacent parts of Mexico, under commission of the Dutch government and of the Société d'Anthropologie de Paris. Since he was always an omnivorous reader of literature pertaining to the American Indians, it is highly likely that Frank Hamilton Cushing influenced ten Kate to undertake his studies of the tribes of the Southwest, for a visit to Zuñi during Cushing's residence there resulted in a warm friendship which never waned until Cushing's death in 1900. During his American sojourn ten Kate came in contact with about twenty Indian tribes, including Iroquois, Apache, Mohave and others of the Colorado river, Hopi, Zuñi, and Comanche. His exploration of the southern part of Lower California was one of the most interesting periods of his first great journey, which occupied fourteen months and resulted in a book of travels entitled *Reizen en Onderzoekingen in Noord-Amerika* (Leiden, 1885), to which additions and corrections, based on subsequent observations, were made in a paper entitled *Verbeteringen en Aanvullingen van "Reizen en Onderzoekingen in Noord-Amerika"* (Leiden, 1889). Other results of his Southwestern studies were various brief papers on the physical anthropology and ethnography of tribes encountered. In the summer of 1884 ten Kate accompanied Prince Roland Bonaparte and the Marquis de Villeneuve on their journey to Scandinavia and Lapland, and in the following year the Prince commis-

sioned him to visit Dutch Guiana, where he studied both the Indians and the Bush Negroes. He proceeded thence to Venezuela, crossed the eastern llanos, and in the summer of 1886 returned to Holland via the United States, visiting en route his old friends the Seneca, by whom he was subsequently adopted, and making a stay at Grand River reserve, Ontario. The winter of 1886-87 was spent in Algeria, and in October, 1887, he sailed for the third time to America, to join the Hemenway Archaeological Expedition as physical anthropologist at the invitation of Cushing, its director, then conducting excavations in the Salt River valley of Arizona. After a stay of about a year with the expedition, ten Kate departed for Mexico, thence again to Holland. In 1889 he published a work entitled *A Foreigner's View of the Indian Question*, and as an active part of the work of the National Indian Defense Association he raised funds in Europe for the Indian cause. In 1890, under the auspices of the Dutch government and commissioned by the Royal Geographical Society, ten Kate sailed for Java, and later explored the islands of Timor, Flores, Sumba (Sandalwood), Roti, and others, coming in contact with aboriginal peoples not hitherto seen by white men. The results of these travels added important information on anthropology, geography, and natural history. From the Indian archipelago ten Kate went to Australia, thence to the Tonga, Samoan, and Society islands of Polynesia. After a perilous voyage from Tahiti he reached Peru, where by pure chance he met his old friend Adolphe F. Bandelier, who had recently arrived to conduct archaeological researches for the American Museum of Natural History. Crossing the Chilean Andes under great difficulty in winter, ten Kate reached the Argentine early in 1893, where he was appointed curator in the Museo de La Plata and participated in an expedition to the Calchaqui region, where many ruins were explored and large collections gathered. He returned to Holland in the same year to publish the results of his travels in the Indies and in South America, at the same time resuming his medical studies at Heidelberg and Freiburg. In 1895 he returned to the Argentine, whence he traveled through Paraguay. Two years later he visited Java, and in 1898 went to Japan, where he lived eleven years, marrying in 1906 a Japanese lady of Yokohama, who accompanied him to Europe in 1909-13, when he returned to Japan to practise medicine at Kobe. Losing his wife in the influenza epidemic of 1919, he could no longer bear to reside in the Flowery Kingdom, so returned to his native land, broken in health. Later he took up his residence in Algeria, but made extended trips to Italy and France, ever pursuing his studies. Dr. ten Kate had no patience with modern progress, the mechanization of everything, nor with efforts made toward what he regarded as the despoliation of primi-

tive people. It was for the latter reason that he abandoned a plan to settle in Hawaii. He was possessed of a remarkably retentive memory, and although most of his life was spent away from the facilities afforded by civilization, he kept well informed of the activities of the anthropological world, especially of the progress of research in America, indeed little was published on the American Indians that was not thoroughly absorbed by him and often critically reviewed. In Paris he was known as "L'homme qui n'est jamais là, où est sa dernière adresse." His field collections help to enrich the museums of Leiden, Rotterdam, Utrecht, Paris, and Berlin. Speaking and writing with facility in eight tongues, and possessing a fine literary sense by which he came honestly (he was a nephew of Reverend J. J. L. ten Kate, the celebrated poet), he published articles and reviews in the journals of several languages and countries, but his most important contributions appeared in Dutch. Except during his last years when a serious cardiac affection made him welcome the end, ten Kate was a prodigious worker. His bibliography perhaps comprises 150 titles. The more important of these are included in the following:

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BOOK REVIEWS

METHODS AND PRINCIPLES

Etat social des peuples sauvages. PAUL DESCAMPS. (Paris. Bibliothèque Scientifique, 1930.)

In the introduction to this volume Mr. Descamps has outlined his theoretic position. He repudiates evolutionary schemes and stresses the need of a search for immediate causes. Analysis must precede synthesis. Phenomena must be studied in their context. The assumption implicit in his work is that economic factors mould social ones. In this he allies himself with a well established school of economic interpretation represented by writers like E. Grosse in *Die Formen der Familie und die Formen der Wirtschaft*. In addition, the author's avowed purpose is to place before French scientists a classified and commentated analysis of ethnographic works not always available. There are included definitions of terms, and among others savages are denoted as hunters, fishers, and food-gatherers. In this scheme Mr. Descamps has accepted the first subsistence stage of evolutionary anthropologists and economists merely as a classificatory device. The dangers of such a procedure are apparent later in the book. On the whole, however, the introduction prepares one for the clear and ordered treatment of data which characterizes so many French treatises.

In the light of such a preparation the mere perusal of the table of contents is somewhat disconcerting. The work is divided into three major parts: "The Natives of Australia," "Evolution by means of Terrestrial Transportation," "Evolution by means of the Canoe." The subdivisions of the last section will illustrate further the confusion of criteria of classification. We find "Fishermen without Canoes," "Canoes," "Advanced Fishermen," which last is again subdivided into such headings as "Peoples without Collective Totems from the Northwest Coast of America," "Collective Totemism of the Northwest Coast of America," "Paleo-Asiatics," "Kauralaig of Torres Straits." It is not to be wondered at that the reader is left puzzled and confused. It is impossible in fact to disentangle from a mass of briefly outlined material what is in theory an intended economic classification. Even when economic classification has been more closely adhered to, there exist strange juxtapositions. For instance, we find Tasmanians, Tierra del Fuegians, and Bushmen lumped together under the subtitle "Hunting Peoples of the South." Here apparently mere latitude, not even environment, is considered a classifying factor.

By far the most careful and detailed portion of the book is the first part, which deals with the Australians. The suggestions for the origin of social phenomena are often ingenious and fertile, if they are not always plausible. Matrilineal descent, totemism, cannibalism, etc. are accounted for in environmental, economic, and demographic terms. There is no necessity to describe and criticize here the theories propounded by Mr. Descamps, but anyone interested in Australia may well find them suggestive and stimulating.

On the whole, however, the value of the work is questionable. At most it fills

the function of giving a newcomer in the field of anthropology a rapid survey of a variety of peoples. The status of women has been stressed. The topical and subject indices are valuable aids in the use of the work for purposes of reference. Theoretical suggestions must be taken with caution, and the evolutionary terminology in all justice to the author must be largely discounted.

CORA DU BOIS

Weltgeschichte der Steinzeit. O. MENGHIN. (Vienna; Anton Schroll & Co., 1931. 648 pages.)

This is a big volume, one of the largest on the subject of prehistory. A careful perusal will disclose something more than mere bigness in its favor. As the title indicates, an attempt has been made to cover the whole world, but of course not everywhere uniformly. This would be impossible in the present state of our knowledge.

In regard to terminology, the author believes that changes are desirable and submits a list of these. He would scrap the term "Palaeolithic" and in its place proposes "Protolithic" and "Miolithic." The protolithic is made to cover the Eolithic and pre-Chellean (Early Protolithic), Chellean and Acheulian (Middle Protolithic), and Mousterian (Upper Protolithic). The lower Miolithic would take the place of Aurignacian, Solutrean, and Magdalenian; while upper Miolithic would replace the Mesolithic. No objection is raised to the Neolithic; it is subdivided into an early, or Protoneolithic, and a full, or Mixoneolithic, culture. For a late phase (transition) of each of these, the author would coin the terms: epiprotolithic, epimiolithic, epiprotoneolithic, and epimixoneolithic. For example, epiprotolithic would be a culture of protolithic rank, which reappears (or persists) in the Miolithic Epoch; and epimixoneolithic, a full neolithic culture reappearing in the Age of Metals. Where a culture jumps a stage, then reappears, Menghin suggests the prefix "opsi"; so that one might speak of opsiprotolithic, opsimiolithic, opsiprotoneolithic, etc. There is apparently no end to what might be accomplished along these lines by an author gifted in the coining of terms, but unfortunately there is a limit to what the student is willing to absorb. These new terms are not only proposed, but are also made use of throughout the book. It might be better to leave the matter of scrapping an old terminology for a new to an international committee on prehistoric nomenclature.

The author is not convinced that a culture antedating the Pleistocene has as yet been found in Europe. On the other hand, he is inclined to accept as artifacts belonging to the Pliocene or at the latest very early Pleistocene the so-called implements of bone reported from Nebraska by H. J. Cook. Thus does distance seem to lend enchantment to the view.

Each culture, beginning with the protolithic, is discussed as to its evolution and geographic distribution and with reference to the materials employed, such as stone, bone, horn, etc. Coming to the protoneolithic culture, it is thought that the animals domesticated had a prime influence on the nature of the culture. The author would divide the cultures based on animal husbandry into three classes: (1) those with swine as a basis; (2) those with horned animals; and (3) those with riding animals as bases, respectively.

The book is devoted almost wholly to the cultural evolution. Very little space is given to the physical types of man associated with Stone Age culture and for these new names are coined: Eomorph, Protomorph, Archimorph, Metamorph, and Mixomorph. These seem simple enough until one attempts to correlate them with the terminology already in use.

Accompanying the text are seven maps and fifty plates. The index is divided and subdivided until it is difficult to know where to look for what one wants to find. For example, there are three divisions: Authors, Archaeological Cultures, and Cultural Elements. Under Cultural Elements one finds three subdivisions, each of which is still further subdivided. The three subdivisions are Husbandry (Wirtschaft), Society (Gesellschaft), and Spiritual Culture (Geistige Kultur). Under Husbandry, the subheadings are: food, shelter, raw materials, technical processes and products, tools and weapons, vessels, and clothing and ornament. Then there is the added handicap that under such a subheading as food, for example, the material is not arranged alphabetically. But it is always easier to be critical than it is to produce something better.

GEORGE GRANT MACCURDY

NORTH AMERICA

The Mound Builders. HENRY CLYDE SHETRONE. (New York: D. Appleton & Co., 1930.)

This work, as told in the Preface, "is dedicated to the average man and woman" who is seeking "the important facts regarding the Mound-builders." It contains much interesting information and should appeal to many readers. Although it treats of the entire country eastward from the Mississippi valley a large part of the book is devoted to a description of the mounds and other earthworks occurring in Ohio, and to a discussion of the several cultures recognized in that state. This allotment of space is to be attributed to Mr. Shetrone's special interest in the ancient remains discovered in Ohio, where he has worked during the past years, as well as to the richness of the material recovered.

The first chapter traces the early theories of the origin of the mounds and inclosures, and under the heading "Early Literature" names some of the more important books containing references to groups of earthworks discovered during the latter part of the eighteenth century. "With the opening of the Ohio country and the establishment of Fort Harmar and the town of Marietta, at the mouth of the Muskingum, came numerous reports of the now famous Marietta earthworks." Unfortunately Mr. Shetrone failed to mention the publication of one of the most important of these reports, namely that prepared by Captain Jonathan Heart, entitled *Description and Plan of Some Remains of Ancient Works on the Muskingum*, which appeared in vol. 1, no. 9, of *The Columbian Magazine* (Philadelphia), May, 1787. The Rufus Putnam map bearing date of 1788 may have been derived from the Heart survey. Jefferson's *Notes on the State of Virginia* was first published in 1785—not 1801 as Mr. Shetrone has stated. In this small volume Jefferson told

of his examination of a burial mound then standing on the bank of the Rivanna in Albemarle county, Virginia, and although, as Mr. Shetrone says (p. 17), "Jefferson's explorations failed to solve the problem of the mounds and their builders," he nevertheless solved the problem of that particular work, really all that could then have been accomplished through the opening of a single mound. Another historical reference is found on page 483. Mr. Shetrone first writes of "the arrival of the vanguard of the native race on the American threshold," and then continues: "In the historic landing of the Pilgrim Fathers at Plymouth Rock, nearly one hundred centuries later, the genesis of the white man's dominion of the Western World, there are to be found striking similarities and significant contrasts." However much this may appeal to some readers, history attributes the "genesis of the white man's dominion of the Western World" to the Spaniards a century and more before the founding of the first permanent English colony at Jamestown, in 1607.

Should the reader endeavor to learn Mr. Shetrone's true belief regarding the identity of the builders of the mounds he will discover conflicting statements. On page 38 he writes: "Had the mound-building peoples possessed adequate supplies of available stone for building purposes, who can say that they might not have survived to become an outstanding, perhaps a dominant, element of the native American race?" This implies that the builders of the mounds and other earthworks had been an unidentified race which had vanished before the coming of the historic tribes. However, on page 477 under the heading "Indians as Builders of Mounds," this sentence occurs: "Approaching the question from the standpoint of specific historic tribes and nations, it is generally conceded that in addition to the Cherokee, most of the Muskogean nations, as the Creek, Choctaw, and Chickasaw, and the Shawnee of Central Algonquian stock, were at times, and in certain localities builders of mounds." Evidently these particular "mound-building peoples" had survived even though they had not made use of stone for building purposes. But possibly Mr. Shetrone does not regard these mound building tribes "mound builders" merely by reason of their having survived to the present day. Why this endeavor to maintain the old belief? Is the secret revealed by a few words found on page 472 to the effect that some "individuals accepted the new interpretation and immediately lost interest in the subject?"

There is a tendency among many archaeologists to ignore all evidence that sheds light on the native inhabitants of the Mississippi valley and the country eastward during the years preceding the coming of Europeans. Mystery is fostered. Thus they disregard the fact that the southern part of the present state of Ohio, and probably the adjoining portions of Indiana, Kentucky, and West Virginia were occupied by the Siouan tribes until very recent times. And it is evident all had not set forth together to seek new homes. Some lingered behind. On the French maps prepared soon after La Salle's journey to the mouth of the Mississippi, 1682, five villages of the Mosopelea are shown north of the Ohio river in a locality corresponding with the southwestern section of the state of Ohio. The Mosopelea have now been identified by Swanton as the Oia, a Siouan tribe later encountered in northern Mississippi, to which region they had migrated from their earlier habitat.

Probably the great site at Madisonville, Hamilton county, where glass beads and other evidence of early contact with Europeans have been found, was occupied by one of the Mosopelea villages. Mr. Shetrone writes (p. 171): "The outstanding site of Fort Ancient culture habitation . . . is the great Madisonville site, near the city of Cincinnati. This site, covering an area of many acres, comprises one of the most extensive aboriginal cemeteries and habitations in the mound area, and in connection with it there were several burial mounds." The finding of early trade beads on the site, associated with a vast quantity of material of native origin, proves the village to have been occupied after contact with Europeans. This would agree with the time the Siouan Mosopelea, or Ofo, began their movement southward. And it is likewise evident that the Quapaw occupied sites in the vicinity of the Ohio, above the mouth of the Wabash, as late as the middle of the seventeenth century. These may have been the last of the Siouan tribes to have abandoned their ancient territories, where, it is believed, they had lived through many generations. Before they became dispersed, when the numerous tribes of the great Siouan linguistic family occupied the restricted area previously mentioned, the country would have been comparatively thickly peopled. The tribe, or tribes which developed the so-called Hopewell culture may likewise have belonged to the Siouan linguistic family, although their connection has not been so clearly established. Their identity will undoubtedly be discovered when a greater number of sites have been examined and the material compared. Be that as it may Mr. Shetrone's statement on page 185 should not be accepted literally: "The Hopewell peoples, unlike those of other centers of advanced cultural attainment in America, lived wholly within the prehistoric period and had disappeared from the theater of action before Europeans came upon the scene." Future discoveries may prove that descendants of the "Hopewell peoples" have been encountered in historic times, and some may even now be living far away from the valley of the Ohio.

To have developed the high culture possessed by the "Hopewell peoples" and to have erected the marvelous ceremonial earthworks, the native inhabitants of southern Ohio must have lived in peace and plenty, unmolested by war parties from other tribes. In this seclusion they would probably have erected scattered habitations, as did the Choctaw and other southern tribes, and evidently did not occupy compactly built villages as was the custom of the Illinois, the Ojibway, and others in the north. This condition may explain the failure to discover a true Hopewell culture village site, a fact mentioned by some archaeologists. The separate mound groups may have served as centers of village communities, again as in the south, although the mounds were of a different nature.

Just as a large part of "The Mound Builders" is devoted to a description of the ancient works encountered in Ohio, so also much of this review refers to the questions arising in connection with those interesting remains. But the volume is not devoted solely to Ohio, and in it will be found information bearing on the mounds and burial places in other sections of the country. The majority of these references have, however, been taken from other publications, now combined to make a connected story, but this would have been more easily followed had state

boundaries been omitted and the bounds of the ancient cultures substituted. With the great number of cultures mentioned this would have been a difficult task. Many are clearly defined, others are vague and uncertain and to the latter class belongs the one now designated Cahokia. This is evidently named after the massive, truncated pyramid, Cahokia Mound, which in turn perpetuates the name of an Illinois tribe known to have occupied the region late in the seventeenth century. The identity of the builders of the mound remains undetermined, but they had undoubtedly come from the south. Innumerable objects of stone and quantities of fragmentary pottery have been found on and about the mounds, but very little of this can be positively attributed to the builders of the works, and few burials have been discovered which may have belonged to that period. The region must necessarily have been frequented by many tribes during the years, or possibly centuries, following the erection of the mounds. It is believed the Omaha, and probably other Siouan tribes as well, were there after they had abandoned their older homes far eastward. Later several villages of the Illinois stood in the midst of the great mound group. And so the question may be asked, To which of the various tribes, or groups of tribes, who have occupied the region during past generations should the objects, now classed by some archaeologists as typical of the Cahokia culture, be attributed? Probably not to the builders of the mounds, possibly to a later period. Unfortunately the photograph of Cahokia Mound, reproduced on page 346, looking southwest (not west as stated in the legend), fails to show the broad terrace on the south, a most important and interesting feature of the great mound.

Much has been told in "The Mound Builders," but even more remains to be revealed by future exploration of numerous sites, and when that has been accomplished it will be possible, in many instances, to identify the inhabitants of other ancient villages and the builders of the neighboring mounds. A more appropriate title would have been *The Mounds*, and in this respect the book proves a disappointment. Many readers will reach the erroneous conclusion that the Mound Builders were mysterious tribes which lived in the distant past and long ago became extinct.

DAVID I. BUSHNELL, JR.

This volume of 508 pages has been prepared, so the author frankly states, in response to a general demand on the part of the public for something explanatory of that far-reaching mound-building custom. With this end in view, he has produced an interesting and important work. While the results of his labors are designed for the benefit of laymen, yet there is packed between the covers of his volume not a little technology of art and custom of the mound builders. The reviewer would not care to criticize his old friend, Professor Shetrone, but still adheres to his original suggestion made some years ago that the author, now our leading authority upon the Hopewell and Ohio archaeology, should have assigned certain sections or chapters to observers who have specialized in other fields. This method would not have taken away from the well deserved credit accruing to the author. Obviously, observers more familiar with the Illinois, Wisconsin, Iowa, Georgia, or Alabama fields might have presented us a little clearer picture.

Ohio has been in the archaeological limelight for more than eighty years. It is true that the Hopewell culture reached heights unattained elsewhere in this country. In portrayal of human or symbolic figures on copper and shell the Etowahans were superior. The Ohio field, with which the author is so familiar, naturally dominated in his mind other fields and therefore a large share of the book is given over to a description of cultures lying within the bounds of that state, particularly the Scioto valley.

Professor Shetrone is rather cautious with reference to his conclusions, and perhaps properly so. In so far as he goes we will all agree. Possibly, he might have indicated a trifle more clearly the vast territory occupied by mound-building stocks, further, that within this large area is another, approximately 700 by 800 miles in extent, in which mound-building and mound art was farther advanced; lastly that there is a "heart" or central and more restricted area in which are found nearly all the highly developed mound art centers. The great Hopewell culture of the Scioto valley (and the adjective is properly applied) was influenced by a knowledge of the South, whereas the Southern cultures were not influenced by a knowledge of the North. This, to the reviewer, seems very significant, and in all probability will have a direct bearing upon the solution of the entire mound problem.

Mr. Charles C. Willoughby, formerly director of the Peabody Museum at Harvard, has studied symbolism and mound art during many years of his long, busy life. So far as the Southern mounds are concerned, and particularly those related to the Muskogean culture, Mr. Willoughby sees their origin toward the westward and near the Mississippi. This will all be set forth in a study of the Etowahan, or, more broadly speaking, Tennessee-Cumberland cultures, now in preparation. Naturally, Professor Shetrone could not refer to this since the observations are unpublished. However, it would appear to the reviewer that the significance of all this lies in the fact that Willoughby interprets through symbolism and study of art forms rather than through a knowledge of mound construction or explorations. It would seem to us that the tribes who built the great works of Ohio, Kentucky, Indiana, and adjacent regions should be studied through their art and their symbolism.

Professor Shetrone has culled from many reports and papers a vast amount of material with reference to explorations, mound structure, votive offerings, etc. There are cited the works of many observers and explorers, all of which is valuable to research students and others. Professor Shetrone does not claim that his volume constitutes the last word in mound study. That cannot be presented until we have conducted explorations in what might be termed certain strategic centers. His presentation and detailed study in the Scioto valley is masterful. In so far as that famous but restricted area is concerned, the story has been completely told. Archaeological science of today is far in advance of that of Squier and Davis. The same may be said of archaeologists fifty years hence, who certainly will know much more than ourselves. Therefore, our good friends of Ohio should heed the oft-repeated suggestion to leave something for the future. Kidder and Judd explored sufficient of Pecos and Chaco areas to determine the cultural status. The same is true of the Etowah work. Very few Hopewell remains are left in the state of Ohio and these

should be religiously set aside as a reserve for the future. The Hopewell group itself should be restored to the original form of 1892. It is not necessary to destroy monuments in order to obtain their contents. This is no criticism of the reviewer's good friend, but merely a statement of fact.

There is a tendency today to extend too far the boundaries of a given culture in which we are especially interested. That is a distinct danger. We should be governed by the preponderance of evidence. A few monitor pipes or specialized effigies from Wisconsin or Iowa, Illinois or West Virginia, may indicate the presence of a tribe closely affiliated with Hopewell. It is more likely, however, that the introduction of such types is due to tribal exchange and barter.

During a conference recently held at the University of Illinois, at which were several distinguished anthropologists, it was suggested that we measure and tabulate without delay crania and long bones from the various sites in the Ohio valley and the middle South. We have already studied the ceramic art to some extent and particularly aboriginal designs and motifs on shell and copper. Our physical anthropologists have done a splendid work. They labor under disadvantage due to lack of sufficient appropriations and rather limited personnel. However, as soon as possible they should, through the study suggested above, give us the necessary data. We desire to know whether the peoples of these high culture mound centers are related to each other physically or not. This is very important. Obviously Professor Shetrone could not comment at any length on physical anthropology in his book, but early in December he told the writer during an interview that he considered the above very important.

Professor Shetrone alludes to the importance of ceramic studies. This cannot be emphasized too strongly. In the Southwest students have already classified and assigned time epochs to the famous Pueblo pottery. Our problem in the Mississippi valley and the South, as well as farther East, is much more complicated, yet it should be undertaken.

As Professor Shetrone remarked in conversation a year ago, he could not cover all these various and important features of mound life, or art, or mound origin, in a popular work. He has, however, indicated many of them and accomplished a difficult task in a most satisfactory manner, for which he merits our gratitude and support.

WARREN KING MOOREHEAD

Mythology of Southern Puget Sound. ARTHUR C. BALLARD. (Univ. Wash. Publ. Anthr., 1929. \$1.00.)

A small number of Puget sound myths collected by Mr. Ballard appeared in the University of Washington publications for 1927. At the time Mr. Ballard was planning to publish the bulk of his myths in a more popular edition, and only those considered obscene or otherwise distasteful to a general public were included in the academic collection. Mr. Ballard, however, subsequently changed this plan, with the result that a new and larger collection now appears in the University of Washington series.

Mr. Ballard's collections are noteworthy for the number of variants of many of the myths secured. There are four versions of "The Man Who Would not Wash his Face," seven of "Pheasant Goes to the Land of the Dead," etc. Sometimes there are two or more versions from the same subarea; sometimes there are two versions from the same informant. Unfortunately, there are occasional synthetic myths constructed out of different versions, but these are rare and are indicated as such.

The second paper contains a variety of information about the people who told the myths. It is interesting that Mr. Ballard, who is not an anthropologist but has developed on his own his interest in local Indians, should procure a wealth of pertinent material that trained ethnographers often fail to secure. In his introduction he gives short biographical sketches of his informants and records the relationship existing between them. Besides this, he has on hand much more information not published. This includes material regarding the exact date of the recording of each myth, the language in which each myth was told, the informant's as well as the interpreter's knowledge of the language employed, the circumstances attendant upon the telling of several of the myths, and notes given by various informants concerning some of the myths. This material, which Mr. Ballard was so kind as to send to the reviewer, has been edited for publication.

The tribes and subtribes from which the myths have been obtained are partly of Salishan, partly of Sahaptin stock. Reference to the map in Haeberlin and Gunther's work, *Indians of Puget Sound*, will be found helpful in a study of Mr. Ballard's two papers. As to content, the myths are interesting for presenting a number of specific similarities to Shoshone and northwest California myths, as well as to those of the North Pacific coast.

D. DEMETRAPOULOU

Petroglyphs of California and Adjoining States. JULIAN H. STEWARD. (University of California Publications in American Archaeology and Ethnology, 24:47-238, 1929.)

This is undoubtedly the most significant piece of work on North American pictographic art to appear since that of Mallery in 1893. Mallery outlined an important field of research—the present work fills in a considerable section of that outline. Perhaps no other single aspect of anthropological inquiry exerts such an appeal to the "lunatic fringe" of science as does the fanciful interpretation of rock carvings and paintings left by aboriginal peoples. Possibly for that reason the scientific recording and interpretation of these data have lagged so far behind in America. Steward's contribution of this highly objective and analytical study is therefore timely and encouraging.

The work includes a thorough description of all known California petrographs (using this term in a non-geological sense to include rock paintings, i.e., pictographs, and rock carvings, i.e., petroglyphs), and a comparison with those recorded, or otherwise known to the author, from Nevada, Utah and Colorado, Arizona and New Mexico, and Lower California. The California data are the most adequate, having been gathered over a considerable number of years by the members of the Anthro-

pology Department at Berkeley and added to and organized in their present form by the author. The Nevada material probably ranks next in completeness, with the other regional descriptions serving more as comparative than complete records. Every site where petroglyphs are known to occur is numbered, mapped, and discussed in considerable detail in the first part of the publication. Seventy-two full page plates and ninety-two text figures give a clear visual impression of the more important native drawings.

The author has approached the extremely difficult problem of ascertaining relationships between petroglyphs from different areas by analyzing their component designs into fifty elements. On identical base maps the distribution of each of these elements is shown, petroglyphs in all instances being distinguished from pictographs. One large chart correlates these design elements and their areal distribution, indicating as well the association of the various elements.

Certain design units show a general distribution over the entire area under consideration, notably concentric circles, wavy or zigzag lines, generalized human forms, and "sun disks" or circles with radiating lines. These elements are among the most widespread in the western hemisphere and are thought to represent an early type.

The other elements are more limited in distribution and are grouped into four main areas. The first of these, Area A, includes California east of the Sierras, Nevada and Lower California. Curvilinear designs are the most striking here, the circle occurring in many combinations. Rectilinear figures—rectangular gridirons, cross-hatching, angular meanders, etc.—are also numerous. Associated with these, though less numerous, are a variety of naturalistic forms, various quadrupeds, hand-prints, bear or human tracks, mountain sheep, snakes, spirals, and stars. Area B includes Utah and Arizona; with the former area it shares the naturalistic and realistic elements, which are even more numerous than in Area A. In addition Area B has birds, horned-toads or frogs, lizards of special rectilinear style, and kachina-like humans. This is an area of predominantly realistic figures, and where geometric curvilinear designs do occur the realistic element is not strong. Most unique in style are the pictographs from Area C, which includes the western (p. 222 says "eastern" but this is plainly an error) part of southern California. These are almost invariably done in red paint and include parallel zigzags and series of diamonds. Since these symbols were made by the historic tribes in the region at the close of their girls' puberty ceremonies, we have an interesting explanation for at least one type of pictograph. There is considerable overlapping of types around the borders of this area, as Map D indicates.

Area D, to the north, includes the Santa Barbara and Tulare regions, where again pictographs prevail. Distinctive in this area is the practice of outlining figures of one color with one or more borders of different colors. Figures made up of dots, "herringbone" or feather designs, alternating bands of color, zigzags, amoeba-like daubs of paint, and anthropoid motifs are worked into designs so elaborate as to defy analysis. This elaborateness, however, characterizes the area, the well known Painted Cave near Santa Barbara (see colored frontispiece) and the sadly mutilated

Carriso rock representing high spots in the pictographic art of California, or, for that matter, of any primitive people. The above summarizes in a very inadequate fashion the author's detailed treatment of a very vexed problem of distribution.

Concerning the distinction between petroglyphs and pictographs the author makes several significant remarks. In eastern California, Nevada, Utah, Arizona, and Lower California, petroglyphs are by far the most abundant and in eastern California and Nevada almost the sole forms. The pictographs of California, except in the northeast, are stylistically quite different from petroglyphs in adjoining regions and the elements of design comprising them are largely distinctive. In southern Utah and northern Arizona it is suggested that the majority of the pictographs represent a somewhat later period than do the petroglyphs though, with the exception of Navaho and Apache pictographs, the styles in both techniques are generally the same. A strange, and at present inexplicable, similarity appears between certain pictographs in Area B, the extreme north of Area A, and those in Area D.

No positive dates can be given for any of the petroglyphs but there are interesting evidences and associations suggesting the temporal relationship of various types. It appears that the petroglyphs of both Areas A and B date back to the early beginnings of Pueblo culture in the Southwest. Some may pertain to the Basket Maker culture (*circa* 1500-2000 B.C.), but the majority are probably as recent as early Pueblo. The exact sequence of petrographic development in Area B is not very clear in the present account, but the student of "Southwestern" petrography will find many valuable suggestions. A definite correlation of petrographic art with known culture horizons in this region is badly needed. With only the fragmentary evidence now available Steward has made a noteworthy beginning. In Area A, weathering of rocks, formation of desert varnish, and physiographic changes indicate a considerable antiquity for numerous petroglyphs. At one site (61) above the Salton sea the presence of a thin layer of travertine over rectilinear petroglyphs dates them back to a time before the subsidence of Blake sea, the forerunner of the Salton sea. Geologists estimate this to have been between three hundred and one thousand years ago, possibly longer. The author, however, is in error (p. 231) in stating that the carvings may have been there prior to the formation of the travertine since they occur in the middle layers of the travertine deposit and not on the bare rock (cf. p. 85). The pictographs of Area C are probably much more recent than the bulk of petrography from Areas A and B. Most of these are of the distinctive girls' puberty type and were made in comparatively recent times. Pictographs from Area D are also probably fairly recent to judge from their rate of weathering in historic times. The similarity of the Santa Barbara and adjacent elaborated pictographs to the ground-paintings of southern California and the Pueblo region should be mentioned. The former, however, show high local stylization and the connection, while highly possible, is not proved. The most recent pictographs in all areas are distinguished by the presence of the horse or some other link with post-Columbian times.

The sections on aboriginal methods of carving or painting and the probable meanings and purposes of petrography are brief. It has evidently been the purpose of the author to make an objective study of the products of the art not its methods,

and he has succeeded remarkably well. Long speculations on the meaning of obscure symbols, like detailed analyses of native pigments, have value, but those anthropologists who would like to visualize the problem in its broader aspects will be grateful to the author for his choice of emphasis. Problems of psychology, aesthetics, and technology are involved in these interesting products of primitive art, but until we know more fully about their distribution, relative age, and development, such studies will hang in mid-air. The present study, with its skilfully handled mass of data and its abundant and clear illustrations, should go far to stimulate similar research in other areas.

WILLIAM DUNCAN STRONG

Wishram Ethnography. LESLIE SPIER and EDWARD SAPIR (University of Washington Publications in Anthropology, 3: 151-300, 1930.)

Culture areas and culture centers have interested American ethnologists for some time but major culture areas, when closely analyzed, appear to be rather transitory phenomena and often savor more of convenience than actuality. With the Wishram, easternmost of the Chinookan tribes, we seem to have under consideration a minor culture center exactly between two major culture areas - the Plateau-Great Basin and the North Pacific Coast. Since the former of these two areas is characterized more by its negative than its positive aspects we can as well make the Wishram peripheral to a third area, that of the Plains. Located at the upper end of the abrupt passage of the Columbia river through the Cascade range in south-central Washington, these people of the "Long Narrows" and their close cultural and linguistic kin, the Wasco, occupied a highly strategic position of which they apparently took full advantage.

The work in hand, dealing as it does with this particularly significant group, is a valuable addition to American ethnography. It is based on the by-products of Sapir's linguistic work in 1905, and the later cultural research of Spier in 1924 and 1925. No pretense at completeness is made, but the present sketch in conjunction with earlier publications of Boas, Sapir, and Curtis, presents the Wishram in a much clearer light than shines on most of their neighbors. The University of Washington is to be complimented on the strides it is taking in securing and publishing so much of this very valuable but rapidly vanishing material.

Concerning the exact location and nature of the former Wishram villages and territories, as well as those of their neighbors, the present work is not overly full or explicit. This is easily understandable since neither author had the opportunity of covering the region in company with his informants. Their brief ethnogeographic section should be compared with that earlier given by Curtis (*The North American Indian*, vol. 8, 1911) which at the moment is not available to the reviewer. It should be noted (cf. p. 271) that there are two Memaloose islands; the one above Nixlu'idix has been used for burial purposes by the Wishram only since about 1892, while the older, historic Memaloose island, is downstream about eight miles from the same point.

Primarily the Wishram were wealthy traders, and their villages on the "Long

Narrows" constituted the greatest aboriginal trade market in the whole northwest. Holding the narrow gorge of the Columbia where plateau peoples met those of the coast, the Wishram and Wasco, as middlemen, controlled a large part of the trade. With the advent of the horse all the western plains came into indirect contact as well and native commerce was greatly increased. Slaves, horses, pounded fish, buffalo robes, wappatoo, shells, canoes, to name only the main commodities, all passed through Wishram or Wasco hands at a good profit.

Wishram culture appears as a striking blend of North Pacific Coast, Plateau, and Plains cultural traits, with the former predominant. Such traits as the existence of three social classes in addition to slaves, the institution of slavery itself, the great importance of class and wealth, sanctification of marriage by purchase, theoretical tribal exogamy, formal spokesman for chief or shaman, head deformation for both sexes but forbidden to slaves, and burial houses for the dead, are typically north-western. The primary dependence of the Wishram on fishing, seconded by gathering, with hunting last in importance, points the same way. On the material side, rectangular plank houses, local superiority in wood-working, dugout canoes with carved gunwales attached, twined baskets and bags, small straight adzes, elkhorn wedges, wood and horn ladles, stone bowls, and the use of the footdrum are further manifestations of Wishram coastal affiliation.

Considering the lack of highly distinctive traits encountered in the Plateau area a rather surprising number of definite parallels to this culture can be found among the Wishram. Sapir has previously (1907) pointed out that Wishram mythology is definitely transitional between the two areas. The predominance of Coyote rather than Raven in Wishram myths is an example of this. In the field of religion much of the vision quest, and more particularly the guardian spirit dance, are shared by both. The mat-covered rectangular lodge for summer use is a link, and, if the round, semi-subterranean earth-lodge can be safely assigned to the Wishram, it too, is characteristic of the plateau. (The reviewer, on the basis of conversation with old Wishram and the detailed account of Lewis and Clark, favors the rectangular plank house, which was also semi-subterranean, as the old characteristic winter dwelling of the Wishram. In the present paper, however, the round earth-lodge is given as more typical on the basis of information received from one of Sapir's informants. Since Lewis and Clark report this type of dwelling among the White Salmon Indians downstream from the Wishram it is quite possible, even probable, that the Wishram had both. However, I seriously doubt that the earth-lodge was more characteristic than the plank house.) Other cultural links with the Plateau are the custom of pulverizing salmon; the use of wooden mortars, hand drums, notched rasps, stone-headed lances, red and yellow war paint, and the small hemispherical sweat-lodge.

Reasonably enough, the authors regard the numerous Plains traits in Wishram culture as late (i.e., after the acquisition of the horse, *circa* 1750). These traits crop up most frequently in material culture and include the costume of women (skin dress, leggings and moccasins), feathered war bonnets for men, shields, elbow pipe used like the calumet in council, occasional use of horse travois, beaded bags and rawhide parfleches with geometric decoration (the latter mainly from the Nez Percé).

I have omitted, solely through lack of space, reference to the excellent descriptions of Wishram individual life, warfare, shamanism, acquisition of power, and religious cults. One misses in this paper the exceedingly detailed comparative sections to be found in Spier's earlier Havasupai and later Klamath reports. There are, however, many valuable comparative references in the text.

It is clear that the Wishram were not only disseminators of coastal culture but were also very receptive to Plateau and Plains influences. How long the Wishram had occupied their historic territory is an interesting question not touched on by the authors. On the basis of recent archaeological research it has been suggested that they were relatively late comers, at least at Wishram or Nixlu'idix, being preceded by a (Salish?) people of Plateau culture (Strong, Schenck, and Steward, UC-PAAE 29: 1-154, 1930). However this may be, the present study would seem to indicate that the Wasco and Wishram were responsible for most of the coastal characteristics revealed in the late archaeological horizons of the Dalles-Deschutes region. Close contacts and gradual interpenetration of coastal and plateau peoples had developed a uniquely blended culture in the valley of the middle Columbia, a state of affairs well indicated by the present study.

WILLIAM DUNCAN STRONG

Californian Indian Nights Entertainments, compiled by EDWARD W. GIFFORD and GWENDOLINE HARRIS BLOCK. (Glendale, Calif.: The Arthur H. Clark Co., 1930. \$5.00.)

The rereading of these folklore selections in this attractively printed volume underscores again the uniqueness of California mythology. In a world where, one comes to feel, one would find the magic flight and John the Bear and tail-fishing in a collection from Congo pygmies or the Australian bush, California is a place of refuge. The tales that make up the mythology there are not the worn stand-bys of the world; these tales from the Pacific coast have a freshness of invention that one discovers all too seldom in collections of folklore. They are surprisingly indigenous.

There are good details. Sun went stealing at Frog's house and stole all her children. Frog pursued her and succeeded in climbing into her house of ice and swallowing her. Then she began to swell. "If Sun swells, and kills me, and wins, there'll always be thieves in the world." Sun kept on swelling and burst Frog in two. Therefore there are people today who steal quite as Sun did. Or, besides the obstacles of thorn bushes and slippery ice and snakes, the hero has to pass also through the Valley of Old Age where everyone who passes weakens and falls. He grows grey, then white, then bent, but he is given magic power to overcome here also. Charming, too, is the story of the arrangements between Moon and his sister Sun. At first Sun traveled by night, but all the stars fell in love with her and blocked her path, and her brother Moon had to take the night trail for her, leaving the day to her.

I miss from the collection some of my especial favorites, most perhaps the Maidu story, as it is told in the *Ethnological Society Publications*, of Earthmaker as the solemn, heavy-footed benefactor who is tricked into the present less smooth but

more amusing arrangements of life by the wily Coyote, the initiator of sex and death. The delightful story from the same volume of the hunting comradeship of Thunder and Mosquito is omitted too.

The volume is prepared primarily for local sale, with designations in each case as to the county in which the tale is told, but no reference to the collection from which the tale is taken. In view of the way in which California tales are scattered through the literature, it is hard to see why it was decided to give no references either to the originals of the tales used or to the collections where more might be found. Mr. Gifford's introduction, however, gives good weight of information about the California Indians and prepares the general reader for the tales themselves.

RUTH BENEDICT

SOUTH AMERICA

Ars Americana; L'Archéologie du Bassin de L'Amazonc. ERLAND NORDENSKIÖLD.
(Paris; Les Éditions C. Van Oest, 1930.)

For both the artist and the archaeologist this is a work of great importance since it both illustrates in excellent technique, and describes and interprets in Dr. Nordenskiöld's usual sane scientific style, the archaeology of a region which is but slightly known and on which little has to date been published even in the most technical and obscure scientific monographs.

It is a folio volume, of de luxe format and impeccable typography, illustrated with fifty-seven large heliotype plates, of which seven are in natural colors. Including the thirteen text figures there are one hundred and ninety-one illustrations, although in many cases several views of the same specimen are given. A map and bibliography increase its value to the scientist.

The text consists of 71 pages. Pages 1-19 are devoted to a general discussion of the archaeology of the Amazon basin, including quotations from the earliest explorers; pages 19-26 to a description of the sites, pages 26-36 to a discussion of the comparative archaeology of these sites; pages 39-63 to a detailed description of the plates; and pages 65-71 to a bibliography and lists.

The region discussed includes primarily the lowlands of the lower and central Amazon and the lower portions of its tributaries, but also includes Brazilian Guiana and the Mojos and Beni regions of the upper Madeira in Bolivia. The Matto Grosso region and the headwaters of the Peruvian affluents, such as the Ucayali, where the archaeology is greatly affected by the culture of the Peruvian highlands, are naturally excluded. The specimens illustrated are mainly drawn from the museums and private collections in Europe, South America, and the United States, the larger part, naturally, being in Dr. Nordenskiöld's museum in Göteborg, Sweden, mainly collected by Curt Nimuendajú, to whom the volume is dedicated.

The archaeology of this immense region evidently demonstrates many points in common, among which may be mentioned very large pottery vessels, mainly burial urns, generally with anthropomorphic decorations or form. The decoration

of the pottery is exuberant with high relief, incised, engraved, or painted designs, but without much coloration.

Dr. Nordenskiöld's scientific deductions may be summarized as follows. The exponents of the highest culture in the Amazon valley and the makers of the excellent pottery were probably the Arawak, an inference indicated by the close resemblance between some of this pottery and that of the Antilles. The use of high relief and incised decoration probably preceded painted designs. These were developed or adopted after the occupation of the Antilles by the Tainan, hence painted decoration never reached the West Indies. There were probably two main civilizations characterized by different burial customs. One of these buried in urns, the other directly in the ground or else consumed the ground bones of the dead with their food. These cultures were probably not contemporary. Urn-burial is probably the later custom, since glass beads have been found in some of the urns; it had not spread to the Antilles, where the dead were buried directly in the ground. Also, in a mound on the Rio Beni, interments were found in the lower part, burial mounds in the upper. The closest resemblances with Antillean pottery are found at Santarem, where pottery relief is very high and ornate and burial urns are not found, the population, according to the earliest historical reports, consuming the pulverized bones of the dead. There is also considerable resemblance between the pottery of Santarem and that of Panama, Costa Rica, and the Beni and Paraná rivers. The anthropometric form or decoration of the burial urns was probably an influence from the western highlands. As regards the age of these two civilizations, the interments in the mound on the Beni river were evidently contemporary with the Tiahuanaco culture, the upper strata with the burial urns contemporary with the Inca civilization, and this may afford a clue as to the archaeological periods and sequences in the Amazonian area.

The major part of the specimens illustrated are from Marajó island and Santarem. The former group is comparatively well known to students of South American archaeology although little illustrative material has heretofore been published upon it. It is to be regretted that some of the unusual specimens from Marajó island secured by the late Dr. W. C. Farabee and now in the Museum of the University of Pennsylvania were not included. The Santarem material is most unusual, especially for its Antillean connections, and practically nothing of the type of the several beautiful vases here figured has ever before been published. Of exceptional interest also are the stone figures which are most unusual and show affiliations with Colombia and with Nicaragua, especially the type of human figures with animals on the back and shoulders.

Except for two plates, 8, which is upside down, and 25, in which the two Santarem bowls are reversed from the references to them in the text, I can make no criticism whatever of this excellent and important work.

J. ALDEN MASON

ASIA

A History of the Orient. G. NYE STEIGER, H. OTLEY BEYER and CONRADO BENITEZ.
(Boston: Ginn and Company, 1926-1929.)

It is not easy in a few words to give an opinion of this book. I could perhaps summarize my opinion in these terms: the general idea of the work is excellent, but its execution in detail leaves much to be desired.

It is obvious, and I am glad to note, that the new and fresh way of seeing the history of the East has already penetrated as far as high school text-books. The Orient is no more a kind of supplement to the history of Europe, interesting only so far as it came in touch with Europe; it is dealt with now for its own sake, and Western influences form only an important portion of this history.

The manner in which this history is conceived is best seen in a survey of the five parts into which the work is divided: (1) The Beginnings of Oriental Civilization (down to the fourth century B.C.), (2) Development and Growth of Empires (from the fourth century B.C. to the end of the twelfth century of the Christian era); (3) Culmination and Decline of Imperial Expansion (1200-1550); (4) Extension of European Influence in the Orient (1550-1860); (5) Development of Oriental Resistance to the Aggression of the West (1860-1926).

These parts are subdivided into chapters, and here is a second point on which this work differs favorably from the generally adopted scheme. From the beginning not only the two territories of which our knowledge is the most extensive, viz. India and China, are considered, but Japan, Further India, and the Archipelago, too, take their right place as important factors in the history of Oriental civilization.

Besides these, the authors have also thought of providing the young men, for whom this work is intended, with something over which to puzzle their brains, in so far as there are "Topics for Discussion" added at the end of each chapter. There are among these "topics" several which one reads with surprise,—e.g., when one is asked. What would Shih Huang Ti do were he Emperor of present day China?; How would Wang An-shih act against the theory of Soviet Russia?; or, when Akbar must be compared with Gandhi, and Shosoku Taishi with Emperor Augustus and with Cavour, or the relation between Śrīvijaya and Majapahit compared with that between Rome and Carthage;—but in all of which one sees a rather attractive idea to find out the common elements of things that are so far removed from each other in time, in space, and in degree of civilization. The great danger is however, that this comparison must be made by high school and other youthful students, who have at their disposal merely the limited data obtained from their textbooks, and who, after they have come to some necessarily superficial answer, may perchance fancy that they are competent judges of historical problems!

There is no reason to be astonished that the Bibliography at the end of the work contains, with a few exceptions, only English books, considering for whom the work is intended. But what seems to us to be rather serious is that the authors, too, have confined themselves mainly to that literature. It seems that, at least so far as con-

cerns the portions dealing with Further India and the Indian Archipelago, no notice whatever is taken of some important books and studies written in languages other than English.

This, naturally, reaps its own reward in the lack of many things which should be found in this book, and in blunders both small and serious in those things which do occur in it. We want to confine ourselves to the Archipelago only, although we should like to mention the strange characterization of the teachings of Buddha (p. 41), "that the way of Salvation lay in a complete surrender of man's will to the will of God,"—and this of the oldest Buddhism, which just excludes as completely as possible the "will of God." Concerning the Archipelago we would mention: that there is no trace whatever of Pallava colonies in Central Java at about A.D. 200; that Śrīvijaya, too, does not appear on the stage until about 450 years later (p. 36); that there is no indication whatever that the colonization originated from the Pallava government (which?, p. 49); that the ship on the Barabudur (p. 50) represents the eighth century type of vessels of Java, and not that of the Pallavas of so many centuries ago; that tradition sets Aji Saka not in the year 1 (p. 106), but in A.D. 78; that the eight or nine towns of Sumatra (p. 111) are based on fantasy; that Singapore became a place of importance only after the period of Śrīvijaya; that Arabian trade in the first century (p. 130) is entirely problematical, but Chinese trade (p. 132) was of importance long before the ninth century; that it is absolutely wrong to say that religious tolerance—noted in Java centuries before that—began with King Kērtanagara (p. 180), whereas Buddhist scholars had visited the Javanese court since olden times; that the capital that had been captured in 1293 was not Singosari (p. 185) but Kēdiri; that there is no reason to assume the introduction of firearms in Java during the Mongolian expedition (p. 186); that a "general massacre of the Chinese merchants and traders" in Java at the beginning of the fifteenth century is out of the question (p. 191), but obviously the mistake is founded on an account that during the inland disturbances a few members of a Chinese Embassy, which happened to be in the capital, had been killed; that Achin as a state was founded only after 1500 (p. 207), at about the time when Malacca became Portuguese; that the rule of the four kinds of genealogy of Malayan princes (p. 218) does not hold good in general; that Raja Bonang was not the first Mohammedan ruler of Java (p. 233); that the first Dutch fleet to Java did not perish at all (p. 252); that the subjection of the Sultan-pretender of Achin (p. 434, not in 1905) was of no importance whatever for the placation, etc. These are all incorrect statements requiring more or less correction,—passages, standing separately, which do not influence the general understanding of the current of historical development.

Much more serious are the statements dealing with the mighty position of the great kingdoms of the Archipelago, Śrīvijaya and Majapahit, respectively. We see a map, page 113, where a dotted line marks "the greatest extent of the Sri-Vishayan Empire, about 1180 A.D." This year is rather unlucky—at least so far as Mons. Coedès is right, that at that time the fall of the Empire had already begun. The spelling *Sri-Vishaya*—whereas all the ancient documents of the country itself give

Śrīvijaya (*sh* occurs only on a few inscriptions from abroad—India proper)—evidently aims to make the “Visayan” influence acceptable as far as the Philippines, for the dotted line surrounds besides Sumatra, half Java, the Malay peninsula and Ceylon, part of the Coromandel coast of India proper, Borneo and Celebes, the Moluccas, and the Philippines, and even the southern half of Formosa, a portion of the opposite shores of China and of Hainan. All these beautiful things are, says the explanatory legend, “prepared from original sources, by H. Otley Beyer,” and one asks with surprise what could be those “original sources”? It seems, following the text (p. 120), that these are manuscripts from Panay; but we are not told what are their contents, which are their dates, and how is their reliability proved. Until now, the influence of Śrīvijaya was established only for Sumatra, the Malay peninsula, and Java, perhaps also Camboja, and even “more perhaps” Ceylon. When the authors now ascribe such an amazing extent to this Empire, one has at least the right for control purposes to request the publication and the presentation of the documents on which they found it. It is not quite right to put all these statements, without any further substantiation, as facts before the student.

The same applies to the Empire of Majapahit (p. 179), which—once more on the basis of these “original sources”—seems to embrace the whole Archipelago and the Malay peninsula, the Philippine islands and South Formosa, and also a great portion of the south coast of China, and a considerable part of Further India. That this is incorrect, can easily be proved with the aid of the Old-Javanese poem *Nāgarakērtāgama*, dating from the most flourishing time of the Empire of Majapahit, which gives a description of that realm. Here we read that the Empire really covered the Archipelago and the peninsula, but we are informed that there were nothing but amicable and commercial relations between Majapahit and the states of Further India, China, and India Proper. The assertion that three districts of the Philippines occur on a “Majapahit List of Colonies,” is something entirely new, but our curiosity about this “List” is not satisfied by the writers. A few pages are devoted (pp. 195–199) to some similarities between customs and achievements of Java and the Philippines; so far as these are correct, they prove a contact between both peoples, but they do not prove that this contact dates from the time of Majapahit, nor that a political influence was collateral with it. The same applies to the golden image reproduced on page 197; it shows undoubtedly Javanese influence in style, but it is sufficiently different from Javanese art to make it clear that it has not been made by a Javanese.

I have dealt somewhat lengthily with my scruples; but I did so because to me it is regrettable that a work, otherwise so attractive and so very suitable for its purpose, and which seems primarily intended to give a good idea of the course of the history of the Orient, is disfigured by incorrect statements. I hope that these will disappear from a new edition, at which time I shall feel that the book will serve all useful purposes which can be rightly expected of it.

N. J. KROM

AFRICA

A Contribution to the Study of Prehistoric Man in Algeria, North Africa. ALONZO W. POND. With supplementary papers by ALFRED S. ROMER, FAY-COOPER COLE. (Logan Museum Bull., v. 1, no. 2, Beloit Wisconsin, 1928.)

Under this general title three different though closely connected papers are published, being the result of excavations and studies at Mechta el Arbi, in 1926-1927, by Mr. Alonzo W. Pond, assistant curator of the Logan Museum. In his field work Mr. Pond was assisted by Mr. A. Debruge, of Constantine. The site in question is situated about forty miles southwest of the city of Constantine,¹ on a plain of Quaternary formation which has a mean altitude of about 800 meters above sea level. Mechta el Arbi is the first site studied under the authorization of the Government General of Algeria. Hence one-half of the various specimens collected have been presented to said government together with a few unique pieces discovered. The remainder is in the Logan Museum.

It goes without saying that this *Contribution*, abounding in numerous details and technical discussions, does not lend itself to an exhaustive review. A paper like this has to be closely studied. No review, however adequate, could sufficiently render everything revealed in the nine tables showing the material collected. The reviewer's task is limited to drawing attention to the publication and to briefly summarizing the contents and the main conclusions. When a few critical remarks are made they should be interpreted as a proof of the interest the reviewer takes in the work of Mr. Pond and his collaborators.

Mr. Pond's personal paper contains, first, a general introduction by Dr. George L. Collie, curator of the Logan Museum, secondly, a preface by Mr. Pond, and finally, ten chapters and a bibliography. Chapters 3-8 deal with the excavations at Mechta el Arbi in a strict sense, while in the other chapters general questions with regard to North African prehistory are treated. These are the *escargotières* (kitchen middens mainly composed of enormous quantities of snail shells mingled with camp-fire ashes) and the analogies to the cultural elements of Mechta el Arbi from the culture horizons of France.

The objects found consist of flakes, scrapers, knives, burins, poignards, microliths, bone points, and nuclei. Among these, flakes and scrapers are the most numerous, respectively 1,072 and 1,312. Simple flakes are countless. Least numerous are bone points (99) and burins (26). From the table on page 57, giving the typical stone implements, "one would say it is very evident that the industry in this *escargotière* of Mechta el Arbi is dominantly Upper Aurignacian." Thirteen pieces only correspond to Mousterian (slight) and thirty-four to Lower Magdalenian. As far as the bone industry of the site examined is concerned Mr. Pond thinks the similarities to European types are too few to allow a comparison.

Professor Romer's annexed study, "Pleistocene Mammals of Algeria," although

¹ It is noteworthy that on page 11, Mechta el Arbi is located "about fifty kilometers (= a little over thirty-one miles) west of Constantine." Which of the two is exact?

having a general and historical trend, bears particularly upon the fauna of the Palaeolithic station at Mechta el Arbi. Among the bones found I may mention: *Felis leo*, *Canis aureus*, *Herpestes ichneumon*, *Hystrix cristata*, *Oryctolagus cuniculus*, all previously unreported. Furthermore, *Bubalis boscephus* is the most abundant animal in the Logan Museum collection. This "hartebeest" was evidently a favorite game animal. As could be expected, utilized egg shells of the ostrich have been found also. To summarize: the probable age of the fauna at Mechta el Arbi appears to belong to the Upper Palaeolithic, which agrees with the archaeological evidence.

Professor Romer's paper also contains an extensive bibliography.

The third supplementary paper, by Professor Fay-Cooper Cole, treats of the human skeletal material found at Mechta el Arbi.

Four burials were found, a child and three adults, at depths varying from three to six feet, and under conditions which indicate that they "certainly belong to the population which is responsible for the mounds." After all that has been said by Mr. Pond and Professor Romer, it strikes me as somewhat curious when Professor Cole says, on page 167:

Since the faunal remains and cultural objects indicate that the mounds were built in pre-Neolithic times, *perhaps in the Aurignacian*;² this new skeletal material becomes of particular value for the light it may throw on the race or races which inhabited Africa at the time.

As the skulls and the other skeletal remains found at Mechta el Arbi are partly defective and incomplete, I think it behooves us to be prudent when drawing far-reaching conclusions.

To the description of the four skulls exhumed by Mr. Pond's party is added the description of another skull previously found at Mechta el Arbi by Mr. Debruge. This skull was studied by Dr. Henri Lagotale, and the results published in *Mémoires de la Société archéologique, historique et géographique de Constantine*, vol. 55, 1923-1924. In Professor Cole's paper it is called the "Mechta type skull."

Of the numerous measurements taken and indices calculated I will only mention the cephalic index. The child "not over six years old," has an index of 83.9. That of the adults is 78.5, 74.3, and 73.37, while the "type skull" shows 76.6. This gives for the adults an average cephalic index of 75.6.³ This average, as well as the individual figures, is doubtless within the limits of variation of the prehistoric as well as of the actual Berber population. The child's index is certainly somewhat exceptional, but children's indices, as well as certain other characters, are, as is well known, liable to great changes and wide oscillations. Their racial value is somewhat restricted, especially in the case of only one rather defective skull. Furthermore, adult averages of 81 and 82 with maxima of 88 and 89, on living Berbers are *inter alia* mentioned by the late Chantre. Therefore, it seems to me far-fetched to say that the Mechta child "appears to fall within the Alpine classification." Alpines *sensu strictu*, as we know them in Europe, have, to my knowledge, never been found in Algeria,

² Reviewer's italics

³ Computed by reviewer.

neither in graves nor among the living. Neither can I share Professor Cole's opinion "that considerable racial diversity existed among the builders of the shellmounds." I think, however, he is right in saying about skull no. 3, that "it gives the impression of being somewhat negroid." As far as I am able to judge, this is the only trace of an alien race in the Mechta el Arbi material.

I think, however, and Professor Cole seems to be of the same opinion, that the few characteristics of the skeletal material found, which remind one of the Neanderthal and Cro-Magnon, are of too little importance to warrant a genetic relationship.

The numerous illustrations of Mr. Pond's paper, distributed over twelve plates, are excellent and instructive. The same, although with a restriction, applies to the illustrations representing the human skulls in Professor Fay-Cooper Cole's contribution. The orientation (norma and horizontal line) of some of these skulls, especially the one figured on page 186, does not respond to the requirements of modern craniology. It is strange and a pity that a map showing the sites of the excavations, etc. and the immediate surroundings is wanting.

Finally, I wish to say that this review was written at the request of the editors of the AMERICAN ANTHROPOLOGIST. Moreover, I must draw attention to the fact that this *Contribution* of Mr. Pond and his collaborators also has been reviewed, perhaps a little too briefly, by the well-known specialist in North African prehistory, Dr. E. Gobert of Tunis.⁴ Instead of venturing a general opinion about the *Contribution*, I think it preferable to quote Dr. Gobert's verdict when he says in the main: "as far as well observed facts are concerned, a valuable contribution. With regard to the artifacts and the fauna of Mechta el Arbi, however, nothing is new to science." Concerning the fauna I should hesitate to endorse Dr. Gobert's opinion unconditionally.

H. F. C. TEN KATE

Rock Paintings in South Africa, from parts of the Eastern Province and Orange Free State. Copied by GEORGE WILLIAM STOW, with an introduction and descriptive notes by DOROTHEA F. BLEEK. (London: Methuen and Co., 1930.)

One must read the title in full as printed inside the book, for the partial title on the outside cover and the back would be misleading, since only a relatively small portion of the vast South African country is represented here. This publication "de luxe" was financed by the Carnegie Trustees, a worthy use of money, and is a masterpiece of presentation by Methuen and Co. of London. The printing is excellent and the careful make-up of the colored plates can hardly be surpassed. At the end of the large volume the artistic map by A. E. Taylor is very helpful in locating the districts and sites mentioned in the text. If there were an index of the plates with respective numbers and subjects as an aid to finding those desired, it would save time and also the annoyance of trying to keep in place the loose, transparent sheets for the protection of the pictures.

Twenty-one pages of introduction by Miss D. F. Bleek, an authority on the subject, are worth reading with care as they contain valuable information. She tells

⁴ Revue Tunisienne. Nouvelle Série, no. 2, 2^e trimestre 1930.

us that the paintings scattered all over South Africa are innumerable, especially in the rocky regions. But the caves sheltering the more abundant and often the best paintings are near the big rivers in the mountain gorges. The present volume contains reproductions of 74 of the numerous originals collected by G. W. Stow, a trader and geologist, between 1867 and 1882. This, then, is merely a selection, for the hardy pioneer had to choose from the very large number of paintings he discovered, from various panels and superposed scenes he drew only the figures or groups he thought significant as representative of the animals of the country and the different activities of the Bushmen. He carefully noted the locations of the sites and all the interesting information he could obtain at the time concerning authors, meanings, etc. Miss Bleek visited the same country and found again 60 of the scenes represented in the present collection, besides many other similar ones. We have then all guarantees of authenticity.

Among the animals the most frequently seen are the varieties of buck: eland, hartebeest, kudu, gemsbok, springbok. Elephants are numerous, rhinoceri and hippopotami rare. Quagga, zebra, giraffe, wild boar, monkeys and baboons, jackal, hare, appear here and there; lion and leopard are common beasts of prey. Domestic animals are found in the more recent paintings. Except for ostrich and crane, birds are few, and so are insects; but snakes, especially pythons, are often present. It is mostly in mythological scenes that frogs, tortoises, and fish are found. Plants are most uncommon. Human beings are represented singly and in groups, in all attitudes and occupations; weapons, clothing, and other domestic objects can be recognized with them. Racial and cultural differences marked either by skin color, shape and size of body, or by clothing and weapons, have been clearly depicted since the coming of the Bantu and later white men in South Africa.

The main fault of both animal and human figures is elongation of the body. The heads of the animals, particularly the buck, are very carefully drawn; those of men, in most cases, are simply sketchy. Neither proportions nor realistic colors are considered essential, but there is a real sense of motion, giving a dynamic quality to Bushman paintings. Certain scenes reveal a feeling for composition and a few plates reach a truly artistic effect, especially plate 21, representing a Bushman, under the guise of an ostrich, stalking three male (black) and two female (blue) birds. The five ostriches display unmistakable apprehension, and the variety and naturalness of their attitudes produce a most pleasing picture of high artistic quality. A systematic comparison of Bushman paintings and pictographs reported from other parts of Africa should prove very interesting. In fact, the origin of this South African art is likely to be found farther north. For any one who has seen the paintings of the Spanish rock-shelters, some scenes represented in this book look strangely familiar.

The principal colors used are red, orange, yellow, brown, black, and white; more rarely blue, blue-gray, pink, and violet. Ochres and clays furnished the common pigments; hematite for red and brown; white is zinc oxide; the black is charcoal; blue probably comes from phosphatic nodules. Dark red and orange are more frequent in the older paintings because more lasting, while white is clearly seen only in the recent drawings. M. C. Burkitt had indicated color sequence for pictographs

in Rhodesia, but, according to Miss Bleek, the age of the southern paintings cannot be successfully studied by the observation of color superposition. For she has seen the same shade in the lowest and in the topmost layers of a palimpsest, and two colors alternating in positions. Neither can we judge of antiquity on the basis of preservation, for the many agents of destruction act very unevenly in various places. The soft sandstone flakes off easily in those rather shallow rock-shelters. This is also why the reproductions given in this album are from the drawings of Stow and not from sketches by Miss Bleek, some paintings having so deteriorated in the course of half a century that they could not have been copied as exactly now as they were by the early visitor. Such extensive weathering in such a short time seems to argue against great antiquity.

Can we distinguish the periods according to quality of workmanship? No, says the author, good and poor drawings are found regardless of layers of paintings. Could we, then, distinguish differences of style? Not according to periods, for monochrome animals are seen in different shades in any layer of the palimpsest. But, as to district, yes, local variations are found and the observations of Burkitt confirm that statement and amplify it as he distinguishes regional styles and a possible chronological sequence.

In recent years a few writers have doubted the Bushman authorship of those paintings. On this question Miss Bleek clearly states her opinion in these terms:

I have not the least doubt that the paintings are the work of Bushmen.

and she explains briefly the reasons for her belief. She then gives a short but comprehensive sketch of the life and culture of the Bushman with which she is so well acquainted,—a sort of introduction to the question of the "*raison d'être*" of these paintings. She reviews and refutes the principal purposes brought up by different writers or schools of interpretation of primitive art. Neville Jones, in his valuable book, *The Stone Age in Rhodesia*, gives a more complete discussion of the same problem and especially of the argument offering sympathetic magic as the main motive for the hunting scenes, dances, and mythologic figures, somewhat as the majority of European prehistorians for the Palaeolithic art of the French and Spanish caves. Miss Bleek, contrariwise,

cannot help feeling that only from love of painting would they (the Bushmen) ever have painted so much, only from a spirit of emulation would they have covered the same rock-surfaces over and over again. That now and then an artist may have used the skill acquired for pleasure to make a magic picture seems possible.

It would lead us too far to debate this point.

The second and much larger portion of the book is made of 72 plates; some in black and white, a great many in colors. They are grouped by provinces and districts. For each plate the following points are briefly and clearly mentioned: locality, site, description, explanation, dimensions. This valuable informative text comprises at times some explanatory notes from Stow and interpretations furnished by Bushmen to whom the pictures were shown. This, in itself, is very interesting.

Such a splendid publication, both as to text and plates, will be a joy for all those interested in "primitive art"; it will contribute a reliable source of information for some aspects of the ethnology of the Bushman, and, together with other works, for comparative study of African art, and also with prehistoric European art, especially of Spain. Similar albums of petroglyphs, pecked, incised or painted, from various African regions would be invaluable as dependable material for further studies along those lines. They would do for Africa what the incomparable publications of the Institut de Paleontologie Humaine, subsidized by the former Prince of Monaco, did so well for the Palaeolithic art of Western Europe.

E. B. RENAUD

PHYSICAL ANTHROPOLOGY

Menschen der Vorzeit. Ein Überblick über die altsteinzeitlichen Menschenreste. (Prehistoric Men. A Survey of the Human Remains from the Palaeolithicum) HANS WEINERT. (Stuttgart: Ferdinand Enke, 1930. V+139 pages, 61 figures in the text)

Among the vast literature which the constantly increasing interest in human prehistory has stimulated, the present volume is doubtless a very valuable addition. Not at all voluminous, its 139 pages contain concentrated but nevertheless exhaustive information on the human fossils, including the most recent find of *Sinanthropus*. The representation of the prehistoric human skeletal remains in the chronological order of their recoveries is sponsored by the concepts and their application, of human phyletic history, the geological and cultural aspects. The successive chapters treat of: The Geological and Palaeontological Prerequisites of Human Incipency; The Glacial Theories and the Co-ordinate Succession of the Human Cultural Stages; The Human Ancestors in the Tertiary and the Missing Link; Man of the Old Palaeolithicum; Man of the Mid-Palaeolithicum; The End of Neandertal Man and the Transition toward *Homo Sapiens*; Man of the Young Palaeolithicum; Man of the Mesolithicum; The Phyletic Significance of Palaeolithic Man in regard to *Homo Sapiens Recens*.

As a means of reference the book gives complete information about each specimen as to geographical provenience, morphology and phylogenetic position, and as far as ascertainable geological and cultural position. All the more important specimens are given in illustration. The usefulness of the representation is greatly enhanced by the uniform orientation of the cranial material in the ear-eye plane, but the most distinguishing feature is the sound critique which not only passes on the individual find but, of still greater moment, pervades and sifts the great and varying mass of morphological and phyletic evidence. The superposition in glabella-opisthocranion orientation of the *hylobates*, chimpanzee, *Pithecanthropus*, and Neandertal cranial outlines, which in this order demonstrate a scheme of morphological advance both convincing and justifiable is, in figure 61, page 132, quite instructive. The Piltdown problem in its various aspects is, for the author—as also for the present writer—not yet settled (p. 83), and so is the problem of genetic relationship between the species *primigenia* and *recens* of mankind, although it is not

unfavorably commented on in various places. "Spurlos verschwunden ist die Neandertal-Form also bestimmt nicht" (p. 83, also p. 135). America from the anthropological or rather anthropogenetic point of judgment receives, quite naturally, a negative consideration (pp. 15, 61, 118), while the cultural complication, particularly in connection with the geological conditions, lay outside the compass of the book.

Citing from the last chapter, a gist of the discussion appears to be sublimated in the following:

The foundation of our genetic history is the unity of mankind; *monophyletic* are all the various human forms in so far as only *one* species of man ape succeeded in the transition from animal to man (p. 127);

and further.

This appears today as the best solution in the problem of humanization, that chimpanzee and man remained united the longest during the process of common development. Furthermore, the separation cannot have taken place before the beginning of the glacial ages (p. 127).

The book as already mentioned is, on account of its up-to-date critical tendency and the reliability of its representation, a very valuable addition to the specific literature, and would merit a translation into English. In such a case, and also in that of a second German edition, it should receive a much more elaborate index, which in its present form is insufficient. On page 70, the name of "Miller, New York," appears which should read Washington, for doubtless Geritt S. Miller, Jr. is referred to; and Furfooz lies in Belgium, not in France as indicated on page 121.

BRUNO OETTEKING

Craniology of the North Pacific Coast. BRUNO OETTEKING. (Publications of the Jesup North Pacific Expedition, volume 11, part 1, Memoir of the American Museum of Natural History. 391 pp. of text, 93 pp. of tables, 11 pls.)

No one who is familiar with the meticulous accuracy of Dr. Oettingking's scholarship and with his splendid mastery of anthropometric technique would expect of him a less finished and thorough piece of work on the crania of the Jesup expedition than he has presented in this great volume. Nevertheless the reviewer has been dazed with admiration, not untinged with envy.

The skull material, which is the subject of this study, consists of some 560 specimens, most of them in good conditions, but only 148 undeformed. The author has divided this material into four groups. (1) the Undeformed; (2) the Cowichan deformation; (3) the Chinook deformation; (4) the Koskimo deformation. Chinook deformation is antero-posterior (fronto-occipital) compression. Koskimo compression produces a conical effect by bandaging. Cowichan deformation is an intermediate type. Dr. Oettingking illustrates the effects of these deformations by median sagittal perigrams and angles of declination.

The exhaustive craniometric study of the deformed skulls leads principally to conclusions as to the effect of deformatory strains upon various parts of the skull. These are of great interest to physical anthropologists but need not be detailed in this review which is intended for anthropologists of all sorts. The skulls of the Unde-

formed, with the exception of the Haida, are of delicate texture, moderate to sub-moderate in size, showing tendencies toward mesobrachy- and hypsiorthocrany, medium to high faces, medium to high orbits, mesorrhiny tending toward leptorrhiny, mesognathy, alveolar prognathism, and moderately developed chins. Age and sex differences are of the expected types. Compared with Mongols, tribal varieties of the undeformed show tendencies toward greater long-headedness, lower cranial heights, lesser facial breadths, narrower noses, higher orbits, and greater prognathy. The Lillooet tribal type is characterized by extreme shortheadedness, low cranial and facial heights, considerable facial breadth, low orbits, and broad nasal apertures. The Eastern Eskimo are distinguished from the Western Eskimo by their cranial diameters, the development of the sagittal crest, the extreme narrowness of the nasal aperture, and the frontal orientation of the orbits. The various tribal varieties of the undeformed show fundamental type affinities with the Mongol stock.

The morphological observations upon these crania are beautifully complete and have been discussed with exemplary thoroughness. The general morphological evaluation (according to "Caucasid" standards) lists as inferior traits: phaenozgy in connection with postorbital constriction, relatively narrow nasal process of frontal bone, torus occipitalis, crista supramastoidea, tympanic hyperostosis, relative levelness of petrous parts. Advanced traits include: smoothness of cranial relief, tendency toward facial narrowing, projecting nasal bridge, refined margo piriformis inferior, marked canine fossa, deep incisura infrazygomica. Dr. Oetteking is unable to decide whether or not these advanced features have come about as a result of environmental changes. He suggests however the probability of race mixture.

A mixture with precaucasid racial elements may have occurred already on Asian soil before the invading hordes migrated to this continent where they phenotyped into the multifarious array of Indian tribal differentiation.

To the reviewer the great utility of this work lies in its exposition of anthropometric and cranioscopic technique. The aspiring craniologist should take this volume into the anthropometric laboratory and read Oetteking as he observes the morphological characteristics of skulls. There is no better compendium of cranioscopy. American anthropology will not soon produce another such exhaustive and exemplary anatomical and anthropometric study of a great series. Here, indeed, is technical perfection. What we have to look forward to is the devising of methods of analysis and comparison which will enable us to draw conclusions from such an admirable mass of scientific data as that accumulated by this erudite and painstaking scholar.

E. A. HOOTON

Körperbau und Geisteskrankheit (Physique and Mental Disease). MAX SCHMIDT. (Monograph. aus d. Gesamtgeb. d. Neurol. u. Psychiat., 56:1-206, 1929. Berlin: Springer & Co. RM. 22.60.)

This monograph is one of the outstanding contributions to the study of the relation between morphology and mental disorders. The author has made extensive

measurements on 200 schizophrenic and 167 manic-depressive patients in Copenhagen, and submitted them to exhaustive statistical study. Male and female patients are treated separately throughout the work. He has computed the average and degree of variation of each measurement and index for each of the disease groups, and also for series of pyknic, asthenic, and athletic cases derived from the material studied. He agrees in the main with the results of Kretschmer and his school, but, thanks to the way in which he has handled the material, he is able to reach some further very important conclusions. He furthermore devotes a chapter to a special discussion of those cases in which the body type is that ordinarily not associated with the psychosis: a group of cases which is small, but from every point of view important.

Racially important criteria, such as the cephalic index and body length, show no typical differences between the disease groups. The greatest differences between the groups are seen in weight and in circumferential and breadth dimensions of the trunk, which are dependent to a large extent on the state of nutrition. He believes that this is due in part to age, since the heavier manic-depressive group averages ten years older than the other; but also to constitutional factors, since parallel less marked differences show up in the head measurements. Head measurements are on the whole larger in manic-depressives, but the faces in this group are also seen to be significantly broader. The hands of the schizophrenic group are found to be narrower than in the other: this again is in part due to environmental factors, since hand breadth can be influenced by manual labor; but also to a tendency of this group to be hypoplastic, as illustrated by similar differences in the feet and ankles. Finally, it is very noteworthy that all measurements show a much greater breadth of variation in the schizophrenic group. This group includes almost all of the extremely variant individuals. In addition to the typical asthenics there are many excessively fat individuals in this class, who have endocrine disorders. The heterogeneity of this group and its tendency to vary in many directions has the effect of smoothing out the averages and bringing them near to the averages of the manic-depressives.

He takes a very conservative attitude with regard to the value of physical types in the clinic. He concludes that the frequency of exceptions to the rule make it impossible to correlate for practical purposes the type of disorder with the physical type. The course of the mental disease is more closely correlated with physique; typical asthenics are usually entitled to a more gloomy outlook, whatever the initial symptoms may be. Especially in extremely variant individuals it is possible to predict the hopeless course characteristic of schizophrenia.

A. M. BRUES

Zur Anthropologie der prahistorischen Griechen in Argolis, nebst Beschreibungen einiger älteren Schadel aus historischer Zeit. (On the Anthropology of Prehistoric Greeks of Argolis, and Descriptions of Several Older Skulls of Historic Time)
CARL M. FURSE. (Lunds Universitetets Årsskrift, N.F., Avd. 2, bd. 26, no. 8;

Kungl. Fysiografiska Sällskapets Handlingar, N.F., bd. 41, no. 8, pages 1-130, 53 figures, 40 plates (*Crania Argolica Antiqua*). Lund and Leipzig, 1930.)

Since the elaborate and erudite work of the Swedish anthropologist lacks both a table of contents and an index, it may be well for a general informatory survey to begin the review with a table of contents in English from the German original text.

INTRODUCTION

	<i>Pages</i>
Introduction	3-12
1A Description of skulls and skeletal parts of Mid-Helladic time	12-41
I From Asine	12-37
II From Mycenae	37-41
1B Listing and discussion of the observations upon the skulls of Mid-Helladic time	41-53
1C Remarks on the types and races of Mid-Helladic time of Asine	53-61
2A Description of the skulls of Mycenae or Late Helladic time	61-95
I From Mycenae-Kalkani	61-75
II From Asine	76-78
III From Dendra	78-85
IV From Heracum of Argolis	85-95
2B Listing and discussion of the observations upon the skulls of Late Helladic or Mycenaean time	96-106
2C Remarks on the types and races of the Late Helladic skulls of Argolis	107-112
3 Description of the skulls of protogeometric, geometric, and hellenistic time of Asine	112-120
4 Anomalous and pathological changes in the bones of the prehistoric graves discussed	121-128
Bibliography	129-130

The skeletal material here investigated was collected at Asine and Mycenae by the Swedish Archaeological Expedition to Greece (1922-1926), augmented by skeletal material from Mycenae-Kalkani collected by the British Archaeological School at Athens. The synchronization table on page 4 places the Mid-Helladic and Late Helladic periods on a level with the Egyptian Middle Empire and the eighteenth dynasty, and with the northern Neolithic and Bronze Ages, about 1800-1400 B.C. It is stated that no skeletal remains have so far been traced to Early Helladic time, and that the earliest skeletal finds in all Greece date back to Mid-Helladic graves of Mycenae and the lower city site of Asine, both situated in the ancient province of Argolis. The skulls from prehistoric Greece are, on the whole, in a fragmentary condition. A number of them were reconstructed from tiny parts, while some of the other skeletal parts were in a better state of preservation. All of them are from flexed burials.

The treatment of the material, as may be judged from the Contents, provides, in each of the principal divisions, for an individual description of the specimens, a discussion of the same, and conclusive remarks on the racial composition.

The principal cranial and facial measurements are assembled in tables, the Mid-Helladic on pages 40-41 and 42-43, the Late Helladic (including the protogeometric, geometric, and hellenistic periods) on pages 92-95; they attest the marked

metrical and type variation of the skulls under investigation. For a more comprehensive survey of the metrical conditions the reviewer has arranged the accompanying table of measurements, which contains some of the original metrical data in classificatory assortment. The Mid-Helladic material comprises 24 measurable adult skulls, of which 13 are male and 9 female, while 2 are of infantile age. The Late Helladic skull material (Mycenae-Kalkani, Dendra, Heraion, Asine, and the proto-geometric, geometric, and the early hellenistic times) numbers 22 males, 20 females including one juvenile, and another juvenile. On account of the fragmentary state of preservation already mentioned, not all the specimens yielded to the measurements provided for in the author's tables.

Under the caption of "Crania Argolica Antiqua" the skull material which forms the subject matter of the present study is shown in excellent photo-gelatine reproduction on forty double-face plates.

FREQUENCIES IN THE CLASSES OF VARIOUS CRANIAL INDICES CONDENSED FROM FÜRST'S
METRICAL DATA ON PREHISTORIC GREEK SKULLS

<i>Cranial indices</i> (classified)	<i>Mid-Helladic time</i>		<i>Late Helladic time</i>	
	Male	Female	Male	Female
<i>I.-Br Index</i>				
Dolichocranial	3	3	8	6
Mesocranial	7	4	6	5
Brachycranial	2	—	1	5
<i>I.-H Index</i>				
Chamaecranial	1	2	1	—
Orthocranial	4	—	5	2
Hypsicranial	1	—	—	1
<i>Transverse Parietofrontal Index</i>				
Stenometopic	4	1	3	3
Metriometopic	2	1	3	6
Eurymetopic	4	1	6	4
<i>Upper Facial Index</i>				
Euryenic	3	—	1	—
Mesenic	1	—	1	1
Leptenic	2	—	3	1
<i>Nasal Index</i>				
Leptorrhinic	3	1	3	1
Mesorrhinic	—	2	2	2
Chamaerrhinic	4	1	3	1
<i>Orbital Index</i>				
Chamaekonchial	5	—	—	1
Mesokonchial	4	2	5	3
Hypsikonchial	—	—	4	1

As regards the behavior of the crania, if judged by the index classes of the accompanying table, incongruence is an outstanding feature in Mid-Helladic time, with a slight tendency toward dolichocrany in both the males and females. This status is upheld to a decided extent in the male skulls of Late Helladic time, while the females frequent the three classes of the L-Br index in even numbers, to the excess, however, of one in the dolichocranial class. The L-H index indicates pronouncedly medium conditions. Quite incongruous, as hinted above, are the proportions between the cranial and minimum frontal breadth. The transverse parieto-frontal index therefore accounts for its two extremes of an equal frequency in the Mid-Helladic males, both exceeding the metriometopic frequency while there is an equal distribution, however small, in the females of that time. In the Late Helladic time there is in the males an excess of eurymetry to twice the amount of either steno- or metriometopy. In the females, on the other hand, there is a variable frequency in the index classes, metriometopy predominating. The upper facial index reveals in the successive times an advance from euryeny to lepteny. The nasal index again behaves very irregularly with only a slight indication of a mesorrhinic condition in the females of both periods, while leptorrhiny and chamaerrhiny occur at equal frequencies in excess of mesorrhiny in the Late Helladic males, chamaerrhiny predominating in the Mid-Helladic males. The orbital index, judging from our table, reveals a tendency toward chamaekonchy in the early period, toward meso- and hypsikony in the later. As to the interorbital proportions, answering to interorbital indices from 23-27, the author notes a "recht gleichmässige Verteilung bei einer gemischten Sammlung von Menschen" (p. 53).

The marked disharmony of craniometric findings reflects the racial composition of the prehistoric Greek of Argolis, who at those remote times was already strongly mixed, a condition characteristic of the Balkan peoples up to our days and which fully justifies the author's epithet "unerhört gemischt" (p. 128). The author establishes in Mid-Helladic time at least one definitely identifiable skull of Armenoid derivation and mentions in this connection another one from Crete described by Duckworth (*The Craniology of the Ancient Inhabitants of Palaikastro and its Neighborhood*. Appendix to Part 2. Meet. Brit. Ass. Adv. Sci., Rept. 82, 1912). He points out the possibility of an Armenian migratory route from Asia Minor by way of the then powerful Crete to Asine, one of her colonies on Greek shores. There are likewise indications of the Nordic, Mediterranean, and Egyptian (*Rhomboides aegyptiacus* G. Sergi) types resembling the cranial variations obtaining in contemporary Crete (p. 61). From the more numerous occurrence of Nordic characteristics in Late Helladic time, particularly in the female skull, the author assumes that

from the present skull material from Late Helladic time of Mycenae-Kalkani it cannot be proven that the majority of their owners belonged to the Nordic race, but it may be maintained that an objection cannot be raised against an identification of archaeological and anthropological finds (pp. 110-111)

thus showing the caution of the anthropological historian in the handling of problems still unsolved. A number of the male skulls display in shape and size a more

powerful appearance quite unlike the Mediterranean type and thus resemble the Swedish Neolithic type, ellipsoid and with strongly developed supraorbital eminences (p. 110, fig. 43). On the whole, the coast people appear considerably more variable than those inhabiting the heights of Argolis in close association of the then rulers and their followers. Enlarging on the racial movements of those prehistoric times of north and south Europe the author finds, by means of archaeological and anthropological research, that its results are conducive to a mutual relation, "eine gewisse Gleichzeitigkeit," between the various countries of Europe, assuming, e.g., that the Greek conquerors of Mycenaean times came from the north while the Nordic megalithic folk came directly or indirectly from the south as did the Nordic "Streitaxt- und Hockervolk" (p. 125). And it is these latter that brought northward an already mixed racial conglomeration.

The reviewer considers the present work of his Swedish colleague a valuable contribution to Greek anthropology, the output of which is on the whole quite meager, owing partly to the fragmentary condition of the recovered and recoverable skeletal material, a condition which also made the work under review one of hardship and intense effort. The few typographical and others errors count for naught in consideration of the painstaking labor and momentous results of the author.

BRUNO OETTINGER

MISCELLANEOUS

Geophagy. BERTHOLD LAUFER. (Field Museum of Natural History, Anthropological Series, vol. 18, no. 2, 1930. 98 pp.)

The practice of geophagy has, as Dr. Laufer points out in his introduction, been subject to much misrepresentation and misunderstanding. In this useful monograph he has, with characteristic thoroughness, reinvestigated the whole matter. Although commonly stated to be a general practice of whole tribes or peoples, it is, he believes, never such, but is essentially an individual habit. Yet although this statement is probably in general true, it hardly seems in accord with the accounts given for the Otomacs and other tribes of the Orinoco region. The habit of clay eating is today perhaps most prevalent in India, yet there is no evidence of its existence in antiquity, either there or in China or Mesopotamia. It was and is unknown in Japan, Korea, Polynesia (except New Zealand), southern South America, and considerable portions of Europe and Africa, including Egypt. It was not in use among either Greeks or Romans. Clay is eaten by addicts, either in its natural state or slightly baked. It was eaten as a substitute for ordinary food in times of famine, or as a condiment, as a delicacy, as a medicine, or in connection with religious rites. These various uses are considered in detail, and a large number of descriptions given, arranged in geographical grouping. Of special value are Dr. Laufer's extended discussions of geophagy in China and of the references to it in Chinese literature. A useful bibliography is appended.

R. B. DIXON

Death Customs; an Analytical Study of Burial Rites. EFFIE BENDANN. (New York: Alfred A. Knopf, 1930.)

This study is based upon data concerning death customs selected by the author from literature dealing with certain native peoples in India, Siberia, Australia, and Melanesia, upon the assumption that the items selected are true samples, first, of the geographical areas represented, secondly, of the world as a whole. The objective of the author is to explain the existence of the customs observed. The first part of the book attempts to review the contrasting methods used by other investigators, considering them in the main impotent, and upon the basis of these criticisms formulating a procedure to be followed in this instance. To quote, "We have endeavored to ascertain the history of definite phenomena by a purely inductive method." Then assuming that actual history has been established, the intention is to face about and proceed by deduction.

In Part 1 of the book, an abstract of published data is given for each area under the following topical heads: origin of death, causes of disposal, dread of the spirit, attitude toward the corpse, mourning, erection of a house, destruction of property, purification, power of the name, feasts, and future life. Each such category is treated separately, though the reader is cautioned that the distinctions are in a measure arbitrary, that functionally all such culture traits integrate. The controlling point of view in the above classification is similarity not only between the areas discussed but among the tribes within the areas. Thus the examples cited are to be taken as instances of uniformity in practice, or universality in distribution.

Part 2 places the emphasis upon differences observed within the areas and even the tribes concerned. Thus, data are given to show that the procedures in mourning vary according to rank, sex, age, etc. Similar statements of fact are given under headings comparable to those just enumerated for Part 1.

Each chapter in the book is accompanied by interpretations and occasional theoretical explanations. Among the many interpretations offered we find the following: a greater variety of native explanations is offered for specific disposals of the dead than for other procedures. Possibly this means that the disposal trait also varies most, but the book is not clear upon this point; yet we are told that of the many ways of disposal, cremation heads the list for the areas considered. In the modification of death customs, physical environment is considered a negligible factor. In the final discussion it is stated that the data on similarities are a true sample of the world and justifies the conclusion that there has been "a uniform line of development" which if unopposed would result in universality. On the other hand, the differences noted are to be explained as due to local social influences. Anyhow, the author states that probably no one of the specific death complexes can be taken as arising independently, but as due to the integrating of other existing traits.

The conclusions are not clearly stated in the text and were possibly so intended since we are told that "the conclusions are tentative, and that much remains to be done along the lines already laid out" (page 16). Nevertheless, the reader will be repaid for going through the book, particularly if experienced in anthropological research.

CLARK WISSLER

Légendes sur les Nartes, suivies de cinq notes mythologiques. GEORGES DUMÉZIL. (Bibliothèque de l'Institut Français de Léningrad, v. 11, 1930.)

Professor Dumézil has summarized in French all available Russian texts dealing with the Nartes. These are a race of giants supposed to have occupied the Caucasus prior to the present populations. The tales and their variants represent five groups of people, the Ossetes, the eastern and the western Circassians, the Tatars and the Chechen. In the legends appear many motives treated by European folklorists. Of wider anthropological interest are the five appended notes. Number 1 discusses the possibility of connecting the Ossetes with the Scythians of Herodotus; 3 and 4 deal with traces of storm and solar myths still discernible in the local legends; 5 indicates certain Persian and Russian elements attributed to Caucasian tales. The author believes that the influence of the former is real, whereas similarities with the Russian are incidental or fortuitous.

CORA DU BOIS

Orpheus, Myths of the World. PADRAIC COLUM. (New York: Macmillan, \$5.00.)

Padraic Colum has retranslated representative myths from seventeen peoples in this handsomest of gift books of mythology, illustrated by Artzybasheff's striking and beautiful engravings. The volume stands out from most other popular collections in that it was not prepared especially for children. Mr. Colum has chosen rather tales from the Kalevala, the Haggadah, the Ramayana, and the Mahabharata, stories which represent the myth-making faculty in its serious mood.

There is little primitive material included. Stories from Peru were apparently selected in order to give representation to the higher civilizations of the New World; the stories themselves are rather savorless. The ones from the Popul Vuh and Sahagun give Middle America and Mexico a better representation. Besides these, the only primitive myths are a couple of Maui stories from the Maori, Pele from Hawaii, and a part of the Cusling origin tale from Zuñi. This last Mr. Colum has toned down a little, but it is still in the style of "Pull not our feathers, O ye of hurtful touch," etc. It corresponds to nothing that belongs to Zuñi, and is not a good enough invention on its own account to merit a place as English literature.

RUTH BENEDICT

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REPORTS

REPORT OF THE AUDITING COMMITTEE

The report of the Treasurer for 1930 has been examined and found correct.

(Signed) A. L. KROEBER

(Signed) E. M. LOEB

Auditing Committee

March 16, 1931.

APPENDIX

The undersigned adds the following.

The Treasurer's report properly accounts for all receipts and disbursements of the Association. It also lists clearly budget allowances and net expenditures, showing that the Association has kept well within its budget. However, the general report includes not only normal, recurrent income and expenditures, which range around \$6000, but special, non-recurrent items like the Index, and "paper" expenditures covered by reimbursements (Memoirs, extra reprints, etc.), which bring the total up around \$11000, or, including cash balances, about \$14000. Essentially however it is only its more or less regularly recurrent income and obligations which the Association can count on in planning its course. For this reason, I have extracted from the books of the Association, with the aid of the Treasurer's assistant, all entries of such recurrent nature during the past three years, and submit herewith a summary of them.

Regular Recurrent Income and Expenditures

Income

	1928	1929	1930
Memb. dues from affil. soc. at \$5	\$1145 50	\$1166.00	\$1653.50
Memb. dues. collected directly at \$6 (less subscr. commissions). . . . .	.. 3664 05	4000.22	3756 84
	<hr/>	<hr/>	<hr/>
Total dues	4809.55	5166.22	5410.34
Sales of publications	843.00	535.15	533.42
Interest and royalty	131.50	148.50	153.00
	<hr/>	<hr/>	<hr/>
Total	\$5784.05	\$5849.87	\$6096.76

Expenditures

American Anthropologist, printing and illustrations.			
No. 4 of preceding year (part).			634.09
Nos. 1-3 of year.	\$2378.34	\$2918.41	\$2904.11
No 4 of year, part		646.32	538.84
No 4 of year, whole	759.88		
No 1 of next year.	125.24		65.90
	<hr/>	<hr/>	<hr/>
Total	\$3263 46	\$3564.73	\$4142.84

Anthropologist and Memoirs			
(distrib., storage, insur., net cost gratis reprints)	455 36	521 79	507 .29
Memoirs			
Print. & ill. pd. by Assoc.	61 85		539.72
<hr/>			
Total account publ.	3780 67	4086 52	5189 95
Sec'y, Treas. & Ed's. offices	1344 41	1187.07	1141 74
Reprinting and purch. of out-of-print publications..	92.27	79.90	118.28
<hr/>			
Total.	\$5217 35	\$5353.49	\$6459.97
Surplus carried over	\$ 566 70	\$ 496 38	
Deficit			\$ 363 21

From these figures it can be inferred that the regular income of the Association is about \$6,000; that toward the end of a period of general prosperity and after several years' membership campaign by the Treasurer it was increasing around 3% annually; and that with a general depression still in force and the membership campaign practically suspended, an increase of regular income above \$6000 is less likely than a decrease.

As against this income, the Association voted a budget for 1930 of practically \$7000, and for 1931 of nearly \$6400.

This surely is unsound policy. If this opinion needs further substantiation, it will be found in the facts that the Association's cash working balance (excluding the Permanent Fund and Index Fund) decreased during 1930 from \$2982 to \$2517; and that whereas 1928 showed a surplus of regular income over regular expenditures of \$566, 1930 showed a corresponding deficit of \$363.

Another way of expressing the situation is by pointing out that whereas from 1928 to 1930 regular income increased only slightly over \$400, regular expenditures increased well over \$1200.

For this situation the Treasurer is in no sense responsible, since he only carries out the Association's instructions. The cause of the condition is obviously lax planning by the Association.

Fortunately, the increase of outlay is not in the direction which so many scientific bodies have followed in recent years, namely administrative overhead. From 1928 the cost of conducting the offices of the Secretary, Treasurer, and Editor actually decreased nearly \$200 (\$1344 to \$1152), and in 1930 the same offices spent \$261 less than the Association's budget allowed them.

The increased cost is wholly due to publishing, which mounted \$1400 in the two years. Of this increase about \$900 was on account of the *Anthropologist*, \$500 on account of the *Memoirs*.

The total cost to the Association of furnishing authors with 25 gratis reprints was \$304.37 in 1930. This seems a legitimate expenditure, as well as a wise one in view of the fact that a gradually increasing number of journals are paying contributors for

articles. Depriving authors of the minimum number of gratis reprints might well result in a lowering of quality of *Anthropologist* articles.

The Editor's office and assistance expenses in 1930 were \$544, that is, slightly over 10% of the sums paid the printer, or slightly under 10% of the total direct and indirect outlay on account of publishing (\$5189.95 plus \$543.96 equals \$5733.91). This seems a legitimate proportion.

The following recommendations are submitted to the officers and Council:

1. That until conditions have given positive evidence of substantial improvement, the Association rigidly restrict its budget for regular purposes to a maximum of \$6,000.

2. That the Association return for the present to the policy of contributing nothing to the cost of *Memoirs* under any circumstances.

3. That officers be encouraged to continue the practice of rigid economy in administrative expenses.

4. That the Treasurer be requested to include hereafter in his annual reports a statement of regular recurrent income and expenditures for the year reported on plus the two to four years preceding, for the information of the Association in planning its policies and budgets.

(Signed) A. L. KROEBER

ARCHAEOLOGICAL FIELD WORK IN NORTH AMERICA DURING 1930

This compilation for the year 1930, which is the ninth of a series of such summaries published in the *American Anthropologist*, is composed of statements sent for this specific purpose to the office of the Committee on State Archaeological Surveys of the Division of Anthropology and Psychology of the National Research Council by representatives of the several organizations doing archaeological field work in North America. It is published in order to acquaint anthropologists with the progress of such field research on this continent within a relatively short time after it has occurred. The number of statements included and the limitations of space make possible only a very brief description of the work and results of any one field party. More complete reports will be printed in the usual publication media of the organizations concerned. The Committee wishes to thank the individuals and organizations that have made this review possible through their cooperation, and requests that any group which has been inadvertently omitted communicate with the chairman.

The West Indies. An archaeological survey of the Dominican Republic under the direction of Dr. Wetmore, aided by a subvention from Dr. W. L. Abbott, was initiated by the U. S. National Museum in 1928. The third season's work, extending from January to May, 1930, included the excavation of an Arawak village site and cemetery at Andres on the Caribbean coast, 30 kilometers east of Santo Domingo City, in the province of Santo Domingo. A reconnaissance was later undertaken in the interior provinces of La Vega and Azua, much of the work being in the heart of the central Cordillera in the vicinity of the valley of Constanza. Much attention

was paid to the recovery of biological material from kitchen-middens, resulting in the discovery of mammalian species. Collections of human skeletal material and of Arawak artifacts, principally of stone and earthenware, were made for the U. S. National Museum. Stratigraphical studies could not be made, due to uniformity and shallowness of midden deposits.

Walter Hough,
U. S. National Museum

Canada and the Maritime Provinces. Mr. Frederick Johnson, working under the auspices of the Museum of the American Indian, Heye Foundation, visited Nova Scotia during the past summer, where he obtained considerable ethnological data. The archaeological side of the expedition's work was confined to locating a camp site on Cape Breton island and several sites near Merigomish. A number of celts, gouges, and arrowheads were collected from the latter locality. Although the sites in this region do not yield many specimens, they are of great value in view of the recent theories of the sequence of cultures in eastern and northeastern North America.

G. G. Heye,
Museum of the American Indian
Heye Foundation

In August Director Fox was in charge of the archaeological work of the Commander Eugene McDonald-Warren Foundation MacGregor Bay Archeological Expedition. The field of work was largely on LaCloche island, Georgian bay region, where an Indian cemetery of the fur trade period was excavated. On an adjacent tract a prehistoric burial was found in a low sand dune beneath a huge cairn of limestone slabs. Much material was recovered and is in the Chamberlain Memorial Museum.

George R. Fox,
E. K. Warren Foundation
Three Oaks, Michigan

Alabama. The members of the Alabama Anthropological Society have continued gathering material in the neighborhood of Montgomery and in the Tennessee valley. Fifty burial urns have been taken from sites along the Tallapoosa and Alabama rivers. A smaller, but more highly developed, type of pottery is being found. Two examples are effigy bowls, one of a duck, the other of a human figure, found in a site at least eighty miles east of Moundville. They are of local clay, and shell tempered, apparently made by the same people who manufactured the highly polished, grease glazed shallow bowls along the lower Tallapoosa river. More than 100 pottery pipes have been found at one locality. The collection of pottery designs on sherds, which now totals 300 patterns, is being drawn by Dr. R. P. Burke for "Arrow Points." The Society is displaying several collections at the Woman's College of Alabama Museum, which opened its doors on April 29, 1930.

Peter A. Brannon,
Alabama Anthropological Society

Alaska. Dr. Ales Hrdlicka's explorations for 1930 were pursued on the Kuskokwim river in Alaska. This large river, heading in Mt. McKinley, formerly had a considerable Eskimo population, and many remain in the region at present. Dr. Hrdlicka was enabled to secure from village sites along the river a large and important collection of skeletal remains and many specimens throwing light on the culture of the Kuskokwim Eskimo. A valuable series of measurements on the living was made by Dr. Hrdlicka, together with observations on the present condition of the Eskimo.

Walter Hough,
U. S. National Museum

An archaeological survey of the Prince William Sound and Cook Inlet regions of southwestern Alaska was made during the summer of 1930 by Frederica de Laguna and Wallace de Laguna, assistant, under the auspices of the University of Pennsylvania Museum, assisted by the generosity of Theodore de Laguna, and several other donors. Collaboration with Dr. Kaj Birket-Smith of the National Museum of Copenhagen had been planned, but illness unfortunately prevented him from going into the field. In Prince William Sound about twenty pre-Russian village sites, out of fifty or more reported by natives, were explored. The shell heaps marking these early settlements yielded a culture not very different from that of the period immediately preceding and following the Russian conquest. While the culture is basically Eskimo, it reflects to a strong degree the influence of the Northwest Coast Indians. About twelve archaeological sites, mostly in the middle and southern part of Cook inlet, were investigated. Two cultures are represented: one very old, similar in many respects to that of the Eskimo of Kodiak and Prince William sound, and characterized by decorated stone lamps; the other, more modern, of late pre-Russian and Russian times, basically Athabascan but showing Eskimo influence. The problem before us is to determine the relationships and geographical distribution of these cultures, and in particular to assign to their proper place the carved stone lamps with a human figure in the bowl.

J. Alden Mason,
Museum of the University of Pennsylvania

Arizona. In January and February, 1930, an aerial survey of the prehistoric canals bordering the Salt and Gila River valleys, central Arizona, was made by a joint Smithsonian Institution-War Department party in charge of Neil M. Judd, Curator of Archaeology, United States National Museum. Several hundred photographs, taken from a height of 10,000 feet, were later assembled into mosaic maps of the two river courses. These were turned over to Mr. Odd S. Halseth, who is doing the ground work of tracing out the canals and indicating them on the maps of the region. Aerial photography offered the only means whereby these once extensive canal systems could be retraced for purposes of permanent record. It has been estimated that sixty years ago, when modern agriculture first began to encroach upon the deserts of Salt River valley, no fewer than 400 miles of prehistoric main line

canals and laterals were still plainly visible. Most of these have since been so completely obliterated through extension of cultivated fields that traces of them are no longer evident from the ground. At an elevation of several thousand feet, however, their former courses were plainly visible even though the ditches themselves had been filled and leveled. Perhaps nowhere else in the world did primitive farmers construct and maintain such vast irrigation systems with no beasts of burden and no metal tools.

Walter Hough,

U. S. National Museum

The Department of Archaeology of the University of Arizona and the Arizona State Museum devoted a part of the field season to uncovering an interesting group of ten mounds some three hundred feet south of Martinez hill, and ten miles south of Tucson. Those of the mounds uncovered this first season present two periods of human culture. In the earlier period, the clay and caliche walls of the partly sunken rectangular chambers were 12 to 18 inches thick, and six to nine small post holes in the well-packed clay floors indicated the method of roof support. In the later, more pretentious structures, the rooms were much larger, the walls more massive (24 to 30 inches thick), and the post holes greater in diameter. Some of the exterior walls of the later structures were reinforced by outer walls built against the earlier ones two or three different times. These reinforcements, together with the quality of sediment found inside of the walls, show that the structures had been flooded, and fine, water-washed mud, sand, and gravel deposited. In two of the mounds now in the process of excavation, walls of clay and caliche are found just under the surface, indicating a superstructure on the same site, the base of whose walls being eight feet above the floor of the first habitation. In the light of our present knowledge, these ruins seem to occupy a transitional stage between the rectangular pit-house villages so common in this region, and the compound structures found in the Casa Grande and Phoenix areas. The pottery indicates a development from the early rough, plain ware through the various stages of red-on-buff, with a very meager suggestion of the Gila polychrome.

During the hot summer months, ten weeks were spent in northern Arizona; three of them on a mesa ruin east of Navajo mountain and near its base. The ruin consists of three main groups, in the oldest of which are pit-house rooms and others showing the transition from the pit-house to the surface type found in the second and third groups. In the oldest section are open courts within the enclosing walls of which are no indications of rooms, but some evidence of wooden shelters. The presence of meal bins and fireplaces imply that these courts were community kitchens and workshops. The floors in some of the circular kivas of the later structures had been pecked out of the shaley rock, which in two of them formed a portion or the whole of the low bench. The outer opening of the shaft was not carried to the top of the wall, but merely to the surface of the ground. The pottery ranges from plain gray and crude indented coiled wares in the oldest section of the village, to good indented coiled, black-on-white, and black-on-red wares in the later and better

constructed sections. Ten days were devoted to studying two small cliff ruins in Long canyon, a branch of Nitsie canyon. They are of the early cliff pueblo type, with an abundance of wattle walls and walls of adobe brick. The textiles and pottery found were characteristic of the region, good twilled yucca baskets and mats, and excellent black-on-white pottery with occasional sherds of black-on-red and "kayenta" polychrome wares.

Byron Cummings,
Arizona State Museum,
and University of Arizona

The Medallion began the year by extending the quest of red-on-buff traces to the Upper San Pedro and northeastern Sonora, about 100 ruins were visited, described, photographed, and sherd collections made. This work was resumed in the fall and will be carried on through the winter.

With the advent of hot weather, the field parties moved up to the Grand canyon, where a ruin was excavated near Navajo point at which our second Wayside Museum will be built, to be donated to and administered by the National Park Service. During the summer, 600 ruins were visited, described, photographed, and, whenever possible, five collections of sherds were made; of these, one will remain in the Wayside Museum, one has been added to the collections at Gila Pueblo, and one each has been given to the University of Arizona, the Laboratory at Santa Fé, and the Museum of Northern Arizona at Flagstaff. The region covered in these operations included the Navajo Mountain country, the north and south rims of the canyon, and the western border of the Little Colorado basin through Flagstaff and south and east along the Mogollon plateau.

Since returning to Gila Pueblo in September, Emil Haury, who has joined the staff, has spent three weeks on a pack trip in the Sierra Ancha in search of prehistoric beam material, returning October 15th, with about 150 specimens by means of which it is hoped to be able to date the Salado culture. In November, the excavation begun last summer of the Rye Creek ruin in the Upper Tonto was completed.

Harold S. Gladwin,
The Medallion

The Museum of Northern Arizona maintained a party in the field under the direction of Mr. Lyndon L. Hargrave from May 1st to October 1st, 1930. The project involved a study of Pueblo II in the San Francisco Mountain area. In May a study was made of ruins in Lower Walnut creek, where the Wilson pueblo, lying 25 miles east of Flagstaff, was excavated. This pueblo, an early Pueblo III site, was built around a one-roomed Pueblo II structure which was restored. Five other small sites in the neighborhood were investigated. In June the party moved to Flagstaff and excavated two Pueblo II mounds, two miles north of that town. After completing this work, a new base camp was established near Deadman's flat, 20 miles north of Flagstaff. Completion of the work at Medicine cave, which was begun in 1928, was followed by the excavation of a second dry cave. The rest of the season

was devoted to the study of sites in the open, and included the excavation of a Pueblo II fort, five Pueblo II pit-houses, one Pueblo I pit-house, two Basket Maker III pit-houses, and two vestibule houses. Test pits were sunk to the floor in ten other Pueblo II pit-houses. The general conclusions reached are: (1) In the San Francisco Mountain area are Basket Maker III, Pueblo I, and Pueblo II rectangular pit-houses differing only in minor details. (2) Sixteen of 18 pit-houses opened having been destroyed by fire, much datable pine charcoal was collected, from which Mr. John C. McGregor has built a chronology of 150 years. (The Museum entertains the hope that Dr. A. E. Douglass will be able to lengthen this chronology before the preliminary report of the summer's work is completed.) (3) The vestibule house, reported by Colton (1920) belongs to Pueblo II, and is an adaptation from the rectangular pit-house with the substitution of an entrance passageway for the ventilator. (4) The floor of the vestibule house may be below the level of the surface, on the surface, or even on top of an artificial mound, often as much as two feet above the ground. (5) The earliest masonry structures in the region were forts and granaries. (6) The last eruption of Sunset crater, the last active volcano in the region, occurred in early Pueblo II.

Besides the work recorded above, Miss Katharine Bartlett and Dr. Colton extended the archaeological survey around the San Francisco peaks by locating about 100 new sites, and Dr. Colton and Mr. Hargrave added 24 new sites to the survey of the Hopi country, among which were two Pueblo IV ruins. The base map of the Hopi country for the archaeological survey has been completed. It is 8 feet by 10 feet, with a scale of $1\frac{1}{2}$ inches to the mile. The base maps of the San Francisco mountains are constantly being revised.

Harold S. Colton,
Museum of Northern Arizona

The Eighth Bernheimer Expedition of the American Museum of Natural History, led by Mr. Charles L. Bernheimer and Earl H. Morris of the Carnegie Institution of Washington, made an archaeological reconnaissance of the Carriso-Lukai-chukai district of northeastern Arizona and northwestern New Mexico, locating new and important sites definitely referable to specific culture periods and thus extending our knowledge of a hitherto archaeologically unknown area. Three drainage systems were carefully examined: the Red Wash, Tse-gi-ho-chong, and Hos-pi-ti-bi-to, in which were found Basket Maker II and III sites as well as sites assignable to Pueblo I, II, and III. The district, as a whole, however, cannot be considered to have been a culture center, the Pueblo as well as the Basket Maker groups, though typical, being outlying settlements.

Clark Wissler,
American Museum of Natural History

Although the main objective of the National Geographic Society's three beam expeditions was realized in the fall of 1929 with the determination of a date for Pueblo Bonito, Dr. A. E. Douglass has nevertheless continued his tree-ring investi-

gations throughout the past year. Dr. Douglass is now preparing a report covering these particular researches in so far as they pertain to southwestern ruins. Messrs. E. W. Haury and L. L. Hargrave, in a Smithsonian Institution publication now in press, describe their 1929 excavations from which charred beam material was recovered to complete the Douglass chronology. The four ruins examined in part, all lying within the Little Colorado River drainage, Arizona, have previously been reported upon by archaeologists. The joint Haury-Hargrave paper briefly reviews their respective observations in relation to the dated timbers recovered.

Neil M. Judd,
National Geographic Society

The Van Bergen-Los Angeles Museum Expedition continued the field work on the Gila valley site begun by the expedition last spring. Another cremation area has been located and some 25 to 30 cremation pit burials have been uncovered. Several house sites have also been laid bare. Upon completing the work at this site, the party will return to the compound site on the Casa Grande National Monument, which has been uncovered but not dissected. Following the completion of the compound site, Dr. Van Bergen expects to continue following traces of earlier sites already located some thirty miles from the present scene of operations.

Arthur Woodward,
Los Angeles Museum

Arkansas. During the season of 1930, the University of Arkansas Museum continued its excavations on the Upper Ouachita river. The evidence secured suggests that this region was inhabited by members of the Caddoan tribes who lived in the southwestern part of this state. The collections consist almost entirely of pottery specimens, with many gourd-shaped vessels that seem to be peculiar to this region. In some cemeteries large, very fine, chipped mortuary knives were common. No marine shell objects were found here, a condition in sharp contrast with that to be found in the adjacent river valleys. This culture is entirely pre-Columbian, for no evidence of white traders' articles has been found.

S. C. Dellinger,
University of Arkansas

California. During the spring months of 1930, the San Diego Museum continued, by means of a series of short trips, the archaeological survey of the California side of the lower Colorado basin. The months of July and August were spent on San Nicolas island, where satisfactory results were obtained despite the fact that this small island has been a veritable playground for the relic hunter for over fifty years. A stratigraphical sequence was worked out for three distinct cultures. The island's first inhabitants seem to have subsisted chiefly on land snails and their middens rarely contain any marine shell species. Fully as strange was the fact that only hearths, and no artifacts, were found in these middens. This horizon has every

indication of extreme antiquity. The decomposition of enormous areas of land snails has produced a characteristic basal stratum of calcareous tufa in many parts of the island below which some hearths were found. The middle period was that of the well-known Canalino culture, characterized by inhumation, but during the third and last period, cremation displaced inhumation. The latter part of the year was devoted to continuing the survey work in the Mohave desert from the point reached in 1928.

Malcolm J. Rogers,
The San Diego Museum

The Southwest Museum carried on a reconnaissance and some excavations in certain caves in San Bernardino and Riverside counties, California, during 1930. This was in charge of Mr. and Mrs. W. H. Campbell of Twenty-Nine Palms, who succeeded in finding pottery vessels, baskets, and implements of wood and stone, most of which can probably be attributed to the Kawia Indians who occupied this territory before the coming of the whites, although a few objects may have been made by earlier peoples. Further work is required to straighten out this point, and this will be undertaken by the Campbells in 1931.

M. R. Harrington,
The Southwest Museum

Colorado. Mr. Richard M. Snodgrasse, a special field assistant in the American Museum of Natural History, continued his archaeological reconnaissance of the preceding season, searching for possible extensions of the Folsom culture in Colorado and Wyoming.

Clark Wissler,
American Museum of Natural History

The Field Museum of Natural History sent an archaeological expedition to southwestern Colorado last June to excavate the Lowry ruin. Dr. Paul S. Martin, Assistant Curator of North American Archaeology, led the expedition, which was financed from the Julius and Augusta Rosenwald fund. The ruin is a large mound 200 feet long, 100 feet wide, and 25 feet high. Eleven rooms and a kiva were excavated during the three summer months. Fragments of paintings were found upon the kiva walls, which had been built upon an older kiva. The site was occupied during three periods, the last of which was either Pueblo II or early Pueblo III. Some burials were found of the earlier periods. The collections made include the usual variety of smaller objects, 70 vessels, and samples of timbers, a study of the rings of which it is hoped will aid in dating the ruin.

S. C. Simms,
Field Museum of Natural History

Florida. Mr. M. W. Stirling continued his archaeological investigations on the west coast of Florida during the latter part of February and all of the month of

March. The first portion of this exploration consisted of a trip through the Ten Thousand Island region for the purpose of mapping such archaeological sites as it was possible to locate in this area. Excavations were conducted on a mound on Horrs island. The second phase of the work consisted of the nearly complete excavation of a large sand mound at Safety harbour, located at the head of Old Tampa bay. This site, which lies on the margin of the territory occupied by the Caloosa Indians on the one hand, and the Timucua on the other, was evidently occupied at the time of the first Spanish contacts in Tampa bay. A large collection of skeletal material was obtained as well as artifacts fairly representative of the material culture of these Indians. Ornaments and utensils of shell, stone, and bone; pottery, tobacco pipes, and trade objects of European origin were among the articles collected.

M. W. Stirling,
Bureau of American Ethnology

Illinois. Exploration by the University of Illinois during 1930 has led to the discovery of a complex village site on Plum island, in the middle of the Illinois river just opposite Starved Rock State Park, near Utica, Illinois. A succession of fire and refuse pits, from three to five feet deep, sunk from different floor levels, and so shouldering upon one another as to imply a succession of occupations of the village site with a continuation of the pit-digging custom from an ever-rising residence level, in association with a variation in pottery techniques and designs greater than might be expected in a continuous development of one culture sequence, combine to indicate the possible existence of stratigraphic data on those cultures which occurred along the Illinois river at different times. On the north side of the river, further excavation of the Mitchell group of mounds, begun in the fall of 1929, has revealed some interesting details as to structure and burial customs. The implication is that of a long cultural development *in situ* with secular changes through diffusion of new ideas, yet still preserving a fundamental substratum of features which remain to the most recent mounds. One mound, which is specifically different from all others in the group in content and structure, when considered geologically from the study of soil profiles and leaching, is thought by Dr. M. M. Leighton of the State Geological Survey to be much older than the remaining mounds examined. At the close of the season, early European burials, with silver ornaments and trinkets of the kind traded to the Indians, have been found intrusive in a mound of the "special black mould" type. As yet, there is no clear indication that the intrusive Indian burials might have been historic. The Adler mounds studied by Langford at Joliet are clearly associated with the Utica culture. Yet the persistence of local peculiarities in communities separated by only a few days' march is very striking. In southern Illinois, the summer season yielded, through survey and reconnaissance, the location, tabulation, and description of over 600 mounds in the Wabash valley, as well as numerous village sites, stone circles, "forts," rock-shelters, petroglyphs and pictographs.

A. R. Kelly,
University of Illinois

The University of Chicago entered its fifth season in Illinois archaeology with ten of its own graduate students and five Fellows from the Laboratory of Anthropology in the field party led by Dr. Fay-Cooper Cole. Following a two-day conference in Chicago, the party located near Lewistown in the Illinois River valley. Two members of the group at once began survey work in Fulton county, while the balance of the party concentrated their attention on a large hilltop mound. Each Sunday morning the results of the week's work were discussed and methods criticized. One hundred and fifty skeletons, numerous flint blades, arrowheads, shell beads, bowls, pipes, and similar artifacts were discovered, as well as objects of copper. All three of the bluff cultures of the region were encountered in one mound, and their age relative to one another determined. Two large Hopewell mounds were opened in the river valley, one of which contained two log-covered tombs and a central burial pit, together with single unprotected burials. The central portion had been surrounded by small poles, as was evidenced by the pole imprints in the soil. A second Hopewell site was opened near Liverpool. Here local excavators had previously encountered log tombs enclosing skeletons and objects typical of this culture. Below the mound proper was a layer of dark sand averaging three and a half feet in thickness resting upon river gravels deposited during extremely high water levels. In the sand, usually near the bottom, were found nine skeletons of different physical type from those in the mound above or in the bluff cultures. The latter were consistently round heads, while those in the sands ranged from middle to markedly long heads. Collections of unworked stones often overlaid or accompanied such burials. The finding of these long heads beneath this mound is the more significant as they have been previously encountered under similar circumstances by George Langford beneath the Fisher mounds near Joliet. Several interesting cases of pathology were found, the most important being a case of osteitis fibrosa, perhaps the first to be described from a prehistoric Indian burial.

Fay-Cooper Cole,
University of Chicago

Indiana. The archaeological field work of the Indiana Historical Bureau during the summer of 1930 was confined to a survey of the counties along the west fork of White river, starting in Randolph county. Frank M. Setzler began this survey June 16th, and completed Randolph, Delaware, and Madison counties before August 10th, when he resigned to accept a position in the Smithsonian Institution. Fred R. Eggan, of the University of Chicago, succeeded him as field director August 11th, and remained in charge until September 27th, when work was closed for the summer. Mr. Eggan conducted a survey in Hamilton and Marion counties and began a survey in Morgan county, which is still incomplete. In each county, an examination of known archaeological remains and mounds, and a search for unreported village sites and earthworks were made. In addition, all collections, so far as possible, were photographed and a brief classification made of their contents.

A tract of land, embracing some two hundred and fifty acres and containing

mounds on the left bank of White river, three miles above Anderson, which have long been regarded as the most striking prehistoric earthworks in Indiana, were deeded to the state on October 7th by the Madison County Historical Society, which purchased them through a county bond issue.

Christopher B. Coleman,
Indiana Historical Bureau

Iowa. As in 1929, field work, both for the purpose of locating new sites and visiting the many active collectors, received more attention than was given to manuscript preparation. Inasmuch as there have been some attempts, partly by persons within the state and partly by outsiders, to commercialize certain of the state's antiquities, it was felt that a personal visit to collectors and students might encourage them to resist all forms of exploitation. The field work has proved profitable in respect to the amount of new information acquired, and apparently also in respect to an improved morale among those interested in the state's archaeology. Ten collectors have turned over their entire collections to the State during the last two years. The field work, though rapid, was also fortunate enough to obtain ample evidence of a fifth prehistoric culture for Iowa in a series of sites scattered along the Missouri bluffs in the southwestern part of the state. Materials examined in Lincoln and Omaha five years ago would indicate that the key to this culture is likely to be found in Nebraska. During June, about half of a rock shelter at the palisades of the Cedar river in Linn county was excavated. The many potsherds and other artifacts recovered indicate, as do the known contents of other rock shelters in east central Iowa, occupation by a Woodland, or Algonkian, culture.

Charles R. Keyes,
State Historical Society of Iowa

Michigan. Mr. Fred Dustin, of Saginaw, acting as special agent for the Museum of Anthropology of the University of Michigan, spent parts of July and August on Isle Royale in Lake Superior, completing the archaeological survey of this island begun the year before. Mines, villages, trails, and waterways were studied and recorded. Dr. W. B. Hinsdale, of the same museum, made a number of short trips to various parts of Michigan in the interests of the forthcoming Archaeological Atlas of the state.

Carl E. Gulthe,
University of Michigan

During the season of 1930, several trips were made to the site in the Warren Dunes where, apparently, a village site is emerging from beneath a dune as the sand moves on. Some excavation work was done by Assistant Barton and Robert Burgh. The site appears to be on an old beach at the Algonquin level.

George R. Fox,
E. K. Warren Foundation,
Three Oaks, Michigan

Mississippi. During the summer months of 1930, Moreau B. Chambers carried on investigations near Natchez in Adams and Jefferson counties for the Mississippi Department of Archives and History. At the beginning of the season, a small burial mound at Fatherland, two miles southeast of Natchez, was excavated. The presence of many objects of French manufacture assigns the erection of this mound to the first quarter of the eighteenth century. The pottery found is of good quality, and the well-executed scroll designs observed on the excavated vessels occur also on sherds from an historic Natchez village site across the creek. A short wooden chest held two compressed burials—six were in a similar chest; the other seventeen burials were extended on the back without coffins, and with no uniform orientation. Several days were spent in the Anna mound group in Adams county and among the Ferguson mounds on the edge of Jefferson county, both above Natchez. Ten other mounds were opened in the Natchez area. The character of the potsherd collections obtained indicates that the other mounds and sites visited during the season represent cultures much older and quite distinct from those of the historic Natchez found at Fatherland. For a few days in January, 1930, and later on in December, in cooperation with Henry B. Collins, Jr., of the U. S. National Museum, M. B. Chambers and James A. Ford excavated three house rings on a prehistoric site at Deasonville, Yazoo county, five miles west of the Big Black river. The largest house, with a diameter of sixty feet, consisted of three concentric circular trenches, in which post holes occurred at regular intervals. Additional post holes indicated the existence of an inner square inclosure. The fire-pit and the outer trench were filled with village refuse in which were found sherds of red-and-white painted pottery, charred corn-cobs, worked antler objects, animal bones, etc. Two somewhat smaller rings at the site revealed traces of inner walls. The entrances to these houses faced west. It is possible that this site is early Yazoo.

Dunbar Rowland,

Mississippi Department of Archives and History

Nebraska. The University of Nebraska Archaeological Survey, cooperating with the Smithsonian Institution, did intensive excavation work from June 11 to September 6, 1930. In addition, some 25 week-ends were spent in excavation and survey work prior to cold weather. Work was prosecuted on the Missouri river (between Nebraska City and Omaha), in the Republican River valley (between Guide Rock and Alma), in the Loup River valley (near Miller), and on the Platte river (near Ashland). A considerable range in time is suggested by the various sites. In the Loup valley an unnotched, well-worked, flint point was found under 16 feet of loess in contact with a fossilized and extinct species of bison. The circumstances of the find preclude absolute certainty, but a high probability of association is implied. Near Ashland, the association of crudely worked flints and fragmentary fossilized bones in re-deposited gravels also suggest considerable antiquity. Another non-ceramic site appears to be a series of burial mounds near Nehawka containing disintegrating flexed burials and flint artifacts. The earliest ceramic culture yet noted

is an extensive buried village previously described by Sterns (AA 17:1, 121-127, 1915). Our investigations have revealed small, reed-thatched houses (shape as yet undeterminable) buried under 15 to 20 feet of washed-in soil. Considerably later than this culture, but entirely prehistoric, are the numerous large house-pits along the bluffs of the Missouri and lower Platte rivers. Two villages of this culture were investigated and six houses excavated. No burials or cremations of this culture have been encountered by the Survey. The houses are semi-subterranean and square in outline. Pottery is abundant. Some of the artifacts from these houses find close parallels in a new prehistoric culture from the Republican River valley, marked by groups of low mounds rather than pits. The one house completely excavated was square in outline. Unlike the square houses on the Missouri, the walls contained post molds, an east and a west entrance, and some of the internal cache pits were lined with rock slabs. A hilltop ossuary of this culture was also excavated. Here, in a large pit, fragmentary human bones were mingled with potsherds and some interesting antler, shell, and native copper artifacts. Worked conch shell spoons and pendants indicate southeastern contacts. Other hilltop ossuaries contained vast numbers of shell beads and no other artifacts. A different culture is suggested. Near Red Cloud, an historic village, abandoned by the Republican Pawnee about 1812, was investigated. In addition, practically all known Pawnee sites in the state have been visited and local collections studied. Pottery, bone, and stone artifacts were secured for comparison with the prehistoric material. In summary it may be said that the initial work of the Survey indicates strong southeastern influences in Nebraska, and almost nothing suggesting the Southwest.

Duncan Strong,
University of Nebraska

In October, 1930, preliminary excavations were started by the Cook Museum of Natural History on an old, consolidated freshwater mud deposit within one half mile of the museum, at Agate, Nebraska. Mammoth bone, bison, and smaller, as yet unidentified, fragments and locally extinct types of freshwater shells have been found in, and immediately above, an old peat bed. These deposits have long been known, but have never been studied. The accidental finding of flaked implements in a layer in this bed is resulting in excavations and studies of the beds, their contents and age. It is planned to continue this work when weather permits during the coming year.

Harold J. Cook,
Cook Museum of Natural History

Nevada. During the latter half of August, M. W. Stirling made a reconnaissance trip to northeastern Nevada. A number of promising sites were located, but excavations have been deferred to a future date.

M. W. Stirling,
Bureau of American Ethnology

The exploration of Gypsum cave near Las Vegas, Nevada, was begun by the Southwest Museum in January 1930, and continued until June, but was suspended during the hot summer months. It was resumed again November 1st, and will be carried on until the end of December and probably into next year. The cave was considered worthy of exploration on account of the finding of typical Basket Maker objects lying on the surface of extensive deposits in the inner chambers, giving rise to the hope that something older than the Basket Maker culture might be found. It must be remembered that the Basket Maker is the earliest well-defined ancient culture hitherto known in the southwest.

As the work went on, it was found that while most of the relics of man lay on or near the surface and could be recognized as the products of Basket Maker, Early Pueblo, and more recent Paiute peoples, every room of the cave yielded something pointing toward occupation by a people older than the Basket Maker, a people apparently associated with certain extinct Pleistocene animals such as the native American horse, two species of indigenous camels, and the ground sloth *Nothrotherium*. Numerous bones of the ground sloth were found, some of them extraordinarily well preserved and still showing some of the tissues attached. Besides these, there were large claws of the same animal with horny coverings still intact, masses of its tawny hair, and even a few pieces of its skin. Most of these were found in a layer of sloth dung which was very extensive and well preserved, due to the dryness of the cave.

Among the evidences pointing to the association of man with the extinct animals were pieces of a cane torch lying beside the bones of a baby sloth, under undisturbed strata and in an unburned area; a collection of sticks burned on one end, evidently the remains of a torch, under a solid undisturbed layer of unburned sloth dung; a stone dart-point between two layers of burned sloth dung and within a yard of a sloth bone on the same level; a piece of a wooden dart-shaft under a layer of sloth dung; two other dart-points at the bottom of a rock slide, in the top of which and almost directly above them lay a sloth skull; fragments of two painted dart-shafts at a considerable depth from the surface (about 10 feet) beneath a layer containing pieces of sloth dung and hair; and most important of all, the finding of a small bed of charcoal at a depth of about 8 feet from the surface beneath two layers of sloth manure. Directly above these, but near the surface, were typical objects left by Basket Maker, Pueblo, and Paiute peoples.

M. R. Harrington,
The Southwest Museum

New Mexico. Dr. F. H. H. Roberts, Jr. excavated a site 16 miles northeast of the Pueblo of Zuñi on the Zuñi reservation in western New Mexico. The work consisted of clearing the debris from two small stone structures of the Pueblo III period. One of the buildings was found to be a 64 room structure, while the other had but 20 rooms. In addition to the living rooms, seven average-sized kivas and one great kiva, 55 feet in diameter, were excavated. The three refuse mounds associated with

the dwellings were explored and 60 burials uncovered. The collection of objects from the site comprises a list of 400 specimens.

M. W. Stirling,

Bureau of American Ethnology

Mr. Stanley Stubbs paid a preliminary visit to the archaeological sites of the Gobernador region in Rio Arriba county for the survey inaugurated by the University of New Mexico and the School of American Research. No excavating was done, but the surface material in the caves and on the mesa ruins indicates occupation of the region by the Basket Makers, then by the builders of the small house ruins, and finally by the renegades after the Pueblo revolt. The large amount of foreign potsherds makes this an interesting region.

The third season of the field work conducted jointly by the School of American Research and the University of Kansas in the Sacramento district near Alamo-gordo yielded additional data on the cultures of the region. The two sites excavated consisted of large rectangular rooms with walls of adobe and stone arranged around a courtyard or plaza. The cultural material found shows a Mexican influence rather than one from the northern Rio Grande pueblos. The predominating pottery is a crude, reddish brown ware with a heavy black decoration, although there are many black-on-white sherds, and fragments of a number of trade wares.

E. L. Hewett,

University of New Mexico

New Mexico State Museum

School of American Research

Mrs. Ann Axtell Morris continued her study of pictographs in the Southwest, having devoted herself this season to four districts: Cañon del Muerto, where the work was initiated the preceding season, the La Plata River region, the Rio Grande, and the Zuñi reservation, including Inscription rock. A splendid series of paintings in color as well as drawings in black and white, and photographic reproductions form the nucleus of what it is hoped will eventually form a comprehensive collection of reproductions of pictographs.

Clark Wissler,

American Museum of Natural History

Assistant Professor Paul H. Nesbitt, of the Department of Anthropology in Beloit College, had charge of the excavations conducted by the Logan Museum in a pueblo ruin on the Mattocks ranch in the Mimbres valley. The object in view was to obtain material for museum display, for research purposes, and for publication, in an endeavor to throw more light on the Pueblo area. Sixty-two rooms were excavated, over 200 burials removed, and a representative collection of the Mimbres material culture obtained. The most important discoveries are as follows: 1. The architectural and ceramic remains indicate that, as time passed, the village underwent decided changes in house types and material culture. The first dwellings were

entirely subterranean pit-houses. During this occupancy, the dead were buried below the floors, stone work was rare, and pottery was distinguished by the large number of black-on-white bowls with realistic decorations. Later, the houses were semi-subterranean, with burials below the floor, stone work was plentiful, and the designs on the pottery were chiefly geometric, with the initial appearance of red-on-white ware. The final stage is represented by houses built entirely above ground. Burials were made outside the rooms. The ceramic remains show a sharp decline in black-on-white ware and a steady improvement in the red-on-white. 2. A kiva, with a ventilator shaft, fireplace, and a stone ledge running the full length of one wall, built during the second period, was found. 3. Among other important finds are a copper bell and two caches of stone hoes containing 25 and 47 specimens respectively.

George L. Collie,
Logan Museum

During the past summer, the Museum of the University of Pennsylvania sent a field party to the slopes of the Guadalupe mountains in Eddy county, New Mexico, and Culberson county, Texas, to investigate the caves so numerous in this region. Dozens of caves were visited in the hope of finding one which had been undisturbed. Three caves, all of which had been previously disturbed, were partially excavated by digging a trench along one wall, leaving the remainder for others. From one cave in Anderson canyon, on the east side of the mountains, we recovered a number of sandals, fragments of baskets and matting, bits of cord, and a few pieces of grayish black pottery. One type of sandal has a sort of fish-tail, formed by the crossing of the two warp elements at the heel, and extending about 2 inches beyond the rest of the sandal. It also has a covering over the toe, formed by shredding the leaves of some of the weft elements and tying them in a knot over the toe. In another cave on the south fork of "Three Forks" of Rocky Arroyo, two coiled baskets, of two-rod and bundle foundation, two sandals with pointed heel and toe, and two spear foreshafts were found. At the same levels, and in some cases above them, numerous animal bones were removed which have since been identified as those of *Equus complicatus*, *Bison alleni*, *Tetrameryx shuleri*, and a bird similar to a large stork. In the third cave on the southwestern side of the mountains near the Peaks, a sandal similar to the pointed heel and toe ones found on the east side, a fragment of twined woven bag, a foreshaft and other wooden objects, and the usual bits of cord and netting were encountered. Some of the potsherds found here were very similar to those from the cave in Anderson canyon. Where the culture of this region will fit into the general picture remains to be seen. Some of its traits strongly resemble Basket Maker, but others are different.

E. B. Howard,
Museum of the University of Pennsylvania

Mr. and Mrs. C. B. Cosgrove, under the direction of Dr. A. V. Kidder, made a reconnaissance in the region to the south and southwest of the Mimbres valley as

far as the international line in search of extensions of the Mimbres culture, and found evidence of an unexpectedly wide, though scattered, distribution of Mimbres material, the meaning of which will be reported on later.

Edward Reynolds,
Peabody Museum,
Cambridge, Massachusetts

Collaborative field work by the Carnegie Institution of Washington and the University of Colorado Museum was carried on from July 4 to October 22, 1930, at a site about four miles south of the Colorado boundary in the La Plata valley, New Mexico. The site overlooks the valley at a point where the latter closes in to form a narrow trough out through an escarpment of white sandstone. A few miles to the northward, the La Plata mountains abounded in game, the river valley provided much good corn land, and at the foot of the cliff, water rises to the stream bed no matter how dry the season. These conditions are sufficient to account for the fact that on the first terrace west of the river is to be found the largest cluster of ruins present in the entire length of the La Plata valley. The surface of the terrace is almost entirely artificial. In a distance of three-eighths of a mile from north to south, about forty house mounds are in evidence, while a blanket of refuse covers natural earth everywhere between them. For forty years, pot hunting has gone on among this cluster, but not to the extent of spoiling it for careful investigation.

The time and funds available in 1930 permitted the exploration of only a portion of the remains. Sixteen buildings were excavated wholly or in part, to a total of 170 rooms. In addition, 10 kivas were cleared, and considerable trenching done in refuse areas. A topographic map was prepared indicating not only surface configuration and the structures and deposits opened, but the other architectural remains and rubbish areas superficially in evidence. The data gathered reveal that the first inhabitants of the mesa to leave trace of their presence settled there during Basket Maker III. Pueblo I is scantily represented, but Pueblo II and Pueblo III, to and including the formal Mesa Verde phase, left great volumes of remains. Thus, the occupation of the site was nearly, if not altogether, continuous. The information which it has so far yielded upon architectural development, and the large collection of pottery and other artifacts recovered will go far toward completing an outline of the history of the material culture of the sedentary aborigines of the La Plata district from beginning to end. The 1930 field work was a continuation of that conducted for the University of Colorado Museum during most of the years since 1916. It was undertaken for the express purpose of securing certain details deemed necessary to the completion of an extensive report on the archaeology of the La Plata region. The objective would appear to have been attained, and the present expectation is that the report will be ready for the press before the end of 1931.

Earl H. Morris,
Carnegie Institution of Washington,
University of Colorado Museum

In the summer of 1930, the University of Minnesota continued excavating in the Galaz site of the Mimbres culture area, where twelve weeks had been spent the previous summer. At the northern end of the site, the excavation of the great communal pit room was completed. The inclined floor of the entrance did not start directly from the floor of the room, but from a step a foot above the floor level. Opposite the entrance was a shallow, circular firepit. Charred remains of sticks and reeds, probably originally forming the roof, were found abundantly over the floor. Near the fireplace was a collection of receptacles and pipes carved from tufa. Below the floor near the fireplace was a small earthenware pot filled with turquoise and shell beads, and near it a frog carved from stone and painted green with features of red and buff paint. Above the pit room were found two habitation levels, each with rubble walls and adobe floors. Along the river bank a single tier of surface rooms was found. Some had pit rooms, dug in the gravel, beneath them. In the southern part of the site, a room of the surface series was found whose wall bases were composed of a single tier of a double row of stone slabs set on end. Below this and in the adjacent area was a series of surface rooms of the rubble wall type, with two pit rooms beneath. A total of 114 skeletons, 142 vessels, and 98 artifacts were found.

The balance of the summer was devoted to excavating a small site on the Hudson ranch, on the banks of the San Francisco river in the Upper Gila area. The main building contained sixteen rooms. There was but the one habitation level. The masonry was of a high order, small flat rocks being used to level up the larger building stones, giving an appearance of coursing in places. Only one burial was found under the floor. All the large rooms had fireplaces outlined in stone. The poorly preserved burials were in a layer of black dirt and rubbish about two feet deep on the slope of the ridge below the house. Most of the burials were accompanied by only several bowls which were piled over the chest, or beside the flexed bodies. The pottery has a greater variety of shapes than has Mimbres ware, but is much inferior in design. The common bowl has a plain or corrugated exterior and a highly polished black interior. White-slipped ollas with a geometric design in black often had handles representing the heads or the entire bodies of animals. In all, 60 skeletons, 178 vessels, and 97 artifacts were found.

Albert E. Jenks,
University of Minnesota

New York. The Long Island Chapter, New York State Archaeological Association, in spite of drought that rendered surface collecting futile and heat that made excavating impossible during the summer months, has had a busy season. Latham has conducted fruitful excavations on Shelter island, Goddard continued on Wickham Creek, Cutchogue, and gave much of the heated period to restoring six fine Algonquin pots from various east end sites; Booth excavated a newly found pit area on the Old Field site at Southold with notable recoveries; and Latham, Booth, Lester, and Goddard continued excavation of the extensive site at Noyack. From the last, a distinct novelty was recovered in a flat slab of stone on which was a carefully and accurately etched figure of a spider web. Work on that site is to be con-

tinued until the end of the year. Reconnaissance has developed good prospects for the future.

Charles F. Goddard,
Long Island Chapter,
New York State Archaeological Association

Each year the Rochester Museum of Arts and Sciences conducts its field work in archaeology for some quite definite purpose; in 1930 an examination of the region was made in hope of finding a few spots that would furnish new clues. We found the region and the clues on the Susquehanna near Binghamton. Expecting to discover a vast area of Algonkian occupation, we encountered what appears to be a strangely mixed Iroquoian-Algonkian culture. Both pottery types are found on the same site and also the interlinking forms. In some ways this condition prevails at the Westfield, New York, site. Now we will have to start all over in our study of ceramics. Some interesting skeletons were discovered. We are gathering quite a collection of pathological bones.

During late September and early October, I found time to take a small party into Pennsylvania to cooperate with Donald Cadzow, who is working on the lower Susquehanna. Pennsylvania, through Cadzow, is discovering that it has an archaeological area of considerable importance.

Arthur C. Parker,
Rochester Museum of Arts and Sciences

North Dakota. The historical and archaeological survey which was begun last winter by the State Historical Society of North Dakota has been entirely successful and much favorable data concerning mounds, village and camp sites has been filed for future reference. Some new sites and mounds have been located which had not been known before. A few of these sites were visited in person by Mr. George F. Will and myself. All the Society can do now is to locate and, if possible, protect from destruction archaeological sites with the view of working them in the near future.

Russell Reid,
State Historical Society of North Dakota

An expedition from the Logan Museum to the Missouri Valley region of the Dakotas, led by A. W. Bowers, a graduate student of Anthropology in the University of Chicago, was financed by Dr. Frank G. Logan of Chicago, and the Trustees of Beloit College. An investigation was made of the remains of the earthlodge-building peoples, ranging from the Knife river, North Dakota, to the Sanger and Grand rivers, South Dakota. Marked differences were found in the style of pottery made by the Mandan and Hidatsa as compared with the Caddoan tribes, the Arikara and Skidis. The Mandan pottery is usually quite black; it commonly has the S curve, lacks handles, and shows excellent cord decoration of the rims. The early Arikara pottery is generally brown in color, has bone or stick imprinted deco-

ration, and often possesses handles or lugs. It is only in the more modern village sites that we find cord decorations. In early times, the Arikara practiced mound burials, but later the individual grave replaced the burial mound. The earthlodges are essentially the same throughout the area studied; such changes as were made consisted merely in an increase of size to accommodate the horse, after it was introduced. Villages were always located near suitable corn grounds. Fortifications were introduced early, and there was a marked tendency to strengthen the defense after 1725, due to the presence of the powerful Dakota.

George L. Collie,
Logan Museum

Ohio. The field work of the Ohio Archaeological and Historical Society during 1930 may be divided into three sections. (1) During April and May, two Iroquois village sites were excavated south of Cleveland on the Cuyahoga river. About 60 large refuse pits yielded quantities of animal bones and a large number of artifacts. About 23 burials were found, several of which were accompanied by whole pots of the scantily decorated variety found on Iroquois sites in northern Ohio. Both of these villages were hilltop fortifications, and both prehistoric, notwithstanding the discovery of two pioneer burials in one of them. Two other fortified sites were examined in the vicinity of Akron, with meager results. (2) In June and July, excavations were continued near Huron, Erie county, on two Hopewell mounds and an Iroquois village site. As the first examples of Hopewell in northern Ohio, the mounds were very interesting. Among the notable finds were a large effigy alligator pipe of Ohio pipestone, two entire pots, a score or more of banded slate gorgets, silver-covered copper ear spools and other ornaments, and a few platform pipes. The two mounds contained in the neighborhood of twenty burials each. The Iroquois village site, a mile up the Huron river, yielded some twenty skeletons and a comparatively small but distinctive collection of artifacts. (3) During August and part of September, a large mound of the Adena type near Athens, in the southeastern part of the state, was excavated. In this mound, originally about thirty feet high, a single burial was found, in a pretentious sub-floor rectangular tomb about six feet in depth.

E. F. Greenman,
Ohio Archaeological and Historical Society

Pennsylvania. Near Safe harbor, Pennsylvania, a group of archaeologists, under the direction of Donald A. Cadzow of the State Historical Commission, is attempting to preserve for the future the prehistoric rock writings found along the lower Susquehanna river. Accurate charts, scale models and moulds are being made of the pictographs in place. Early in 1931 an effort will be made to remove some of the rocks to the State Museum, for in 1932 the backwater from a new hydro-electric dam will cover the area to a depth of about forty feet. From the comparative study made of the pictographs, it is evident that there are three groups of them. The earliest highly conventionalized figures are found on Walnut island about three

miles above Safe harbor. Another group, about six miles above Safe harbor, have some of the characteristics of the Walnut island group with easily deciphered human figures only slightly conventionalized. The third group, about one-half mile below Safe harbor, are of apparent Algonkian origin. In the latter group the thunder bird, deer, elk, buffalo, and snakes are clearly depicted.

The discovery of Algonkian evidence on the islands led to a search for their remains on the mainland. About one-half mile from the rocks upon which the Algonkian picture writing was found, a burial site with six human skeletons was uncovered. With these burials were found one complete pottery vessel and several clay pipes and other objects typical of the culture. An effort to locate sites contemporary with the writings on Walnut island and farther up the river led to the discovery of Susquehannock Indian village and burial sites. To date, a total of 120 burials have been uncovered, together with approximately 250 complete plain and effigy pottery vessels, carved and etched effigy pipes, innumerable bone awls and punches, a complete series of effigy combs made of antler and bone, fishhooks, and one complete wooden spoon preserved in a brass kettle. Some of the sites indicated trader contact, others were prehistoric. Altogether enough native Susquehannock material has been found to interpret accurately the material culture of these people when they were at the zenith of their power on the Susquehanna river. Evidence of another culture as yet unidentified has been found at Washington borough not far from the upper group of pictographs. Three skeletons in this group are being compared with the known Algonkian remains. The artifacts found with this culture differ from both the known Algonkian and the Susquehannock material from the region. Their pottery is made from a red clay and, instead of the shell filler of the Susquehannock and the pebble filler of the local Algonkians, it has a pounded quartz filler. In type it differs from both of the above mentioned cultures, and is decorated with incised designs from base to rim. A girdle of three hundred and ten graduated bone beads, and a comb of a new type for the region was found with this group.

The well-established graphic art of the Susquehannocks, as depicted upon their pottery and other objects, eliminates them from the possibility of having carved the highly conventionalized figures upon the rocks. The Algonkian group has what appears to be a contemporary land site near-by. Perhaps the unidentified culture may prove to be that of the people who pecked their first efforts at graphic art on the rocks in the river.

In addition to the work near Safe harbor, Robert M. Engberg and George Fisher, working from June 1 to September 15, continued the Fayette-Westmoreland counties investigations begun in 1929. The territory included the area between the Youghiogheny and the Monongahela rivers, which had not been investigated in 1929. A private undertaking has been that of the Messrs. Allyn and Richard Wright of Warren, who have completed a township by township survey of almost three-quarters of Erie county, and so far have located 19 camp sites, 10 villages, 6 earth rings or enclosures, and 7 mounds. The mounds are small, 25 to 30 feet in diameter, and three or four feet high. Directly connected with the archaeological field work is the organization of the Society for Pennsylvania Archeology, the first annual meet-

ing of which was held at the University Museum in Philadelphia, in January, 1930.

Frances Dorrance,
Society for Pennsylvania Archeology

Tennessee. During 1930, the East Tennessee Archaeological Society continued its survey and study of aboriginal remains in Hamilton county. In addition to this, over a period from May to December, a group of three conical mounds on the R. N. McKenzie farm, Tennessee river, was completely explored. They averaged six feet in altitude and thirty-five feet in diameter. Smithsonian aid was granted for this work. The museum at Chattanooga, where the artifacts and remains will be displayed, also cooperated with the Society. All burials have been those of adults. Artifacts were few and there was a total absence of pottery, except sherds brought in during the mound construction. The mound had been raised over a building which had been partially burned. An exceedingly large nut stone was found on the river's edge opposite a village site. It was estimated to weigh 300 pounds and has over 50 nut holes. The Society also worked on the Evans farm in Sequatchie county. Eight burials have been removed. No pottery has been encountered so far, but bones, shells and artifacts have been recovered. No evidence of European contact has been discovered in either of the above mentioned sites. The construction of dams for power and navigation purposes will cause total destruction to many sites. It is essential to secure definite data and enlist the interest of the public in order to secure means, and thoroughly examine such sites as fast as possible. Sites for 17 dams have been authorized by the Government and construction on some has started.

Charles K. Peacock,
East Tennessee Archaeological Society

Texas. During the latter half of July, M. W. Stirling made a reconnaissance trip to the Big Bend region in Texas. A number of caves were examined, but no excavations were undertaken at this time.

M. W. Stirling,
Bureau of American Ethnology

In the central portions of the state, I have done further research in the "burnt rock middens," and have confirmed my establishment of three culture levels, which I refer to as the Lower, Middle, and Upper cultures. Occasionally middens are found containing elements of one level only, sometimes of two, and sometimes of all three levels. These levels will almost surely tie with the New Mexico-Arizona culture stages when careful comparisons are made. During the summer I explored numerous rock shelters along the Cowhouse, Bosque, and Leon rivers and their tributaries, all of which had been occupied by man, and most of which had been utilized for burial.

In the latter part of the summer, an expedition was sent to the coast near Corpus Christi and Rockport. The whole coast region gives abundant evidence of a cul-

ture based on a sea food economy combined with some hunting. One strip of the coast below Brownsville is possessed of evidence of an almost pure sea shell culture, arrowpoints, spearpoints, axes, and scrapers all being made of shell. Bones of dogs of a given type are found from central east Texas to Brownsville; i.e., the small, sharpnosed variety described by Gatschet as voiceless, and mentioned by the Spaniards as existing both in east Texas and in Yucatan. Pottery is found along the whole coast line and at places in large quantities. Patterns, materials, and forms of decoration vary decidedly from one part of the coast to another, but everywhere there is evidence of high grade wares.

Two expeditions went to the Red river and east Texas about the middle of the summer. This is the region of a sedentary village culture in historic times, and here are found abundant evidences of a high culture of the Mound Builder type. The region is very complicated archaeologically.

I have not worked in the far west (Trans Pecos), on the high plains, or in the Panhandle during the past year, but at a meeting of the Archaeological Society at Abilene recently, I heard papers from and had interviews with workers in those parts. Mr. Floyd Studer of Amarillo reports numerous village sites with houses of stone foundation along the Canadian; also much pottery and many mullers, indicative of horticulture. Some of this seems to tie up with New Mexico, but it is my opinion that the pottery indicates a movement up the streams westward from the Mississippi valley. Certainly the sparse pottery remains of central Texas represent a westward movement from the coast and east Texas. Around Abilene, Dr. Ray and Mr. E. B. Sayles have made numerous highly significant finds. Dr. Ray took me to a place on Elm creek near Abilene where fireplaces with flint artifacts and slivers are being washed out of a bank at a depth twenty-four feet below the surface. These artifacts are identical in type with those of the Lower Culture in the central Texas middens. Evidently, therefore, this culture level dates back many centuries, but the clays and sands of the Abilene district are subject to much shifting by the prevailing high winds in the frequent droughts. The Malakoff sandstone image found in high gravel terraces of the Trinity some twenty miles east of Corsicana is certainly also very old, but cannot be placed definitely because of the possibility of those gravels having been disturbed by a near-by creek. The geological age of both the Elm Creek bank and of the Malakoff terrace is yet to be determined. Dr. E. H. Sellards, of the University of Texas, thinks that both involve serious difficulties.

J. E. Pearce,
University of Texas

During 1930, the many members of the Texas Archaeological and Paleontological Society have continued to record the locations of and secure collections from village sites, shell middens, rock shelters, cave deposits, and burial places in widely separated parts of the state. The more noteworthy results are: Mr. Conkling, of El Paso, reports finding bones of extinct Pleistocene mammals in association with human bones deep in a cave; Mr. Studer, of Amarillo, reports the location of several

additional sites in the Panhandle; Mr. Sayles, of Abilene, has found a new local form of burial in which graves occur in hard caliche soil below a large pile of rocks; Dr. Ray has found burnt rock and charcoal strata at depths of 15, 24, and 27 feet below the surface. Four flint artifacts of distinctive form have been found *in situ* 24½ feet below the surface. Elsewhere, five burials have been excavated by him, two of them in stone-lined graves, a type not previously found in this section.

Cyrus N. Ray,

Texas Archaeological and Paleontological Society

Owing to the fact that the entire collection of the West Texas Historical and Scientific Society was moved into more adequate quarters during the year, less field work than usual has been possible during 1930. Five new sites (three open camps and two small rock shelters—one with pictographs) showing evidence of former Indian occupation were discovered. These, together with former locations, bring the total record up to 162. Approximately 60 museum specimens were added to the collection as a result of the year's work at old and new sites.

Victor J. Smith,

West Texas Historical and Scientific Society

Utah. The Department of Anthropology, University of Utah, worked in three localities this year. The first was a large cave on the north shore of Salt lake which contained a hybrid early Pueblo-Plains culture. Below this in the cave deposits was evidence of human occupation down to the sands of Lake Bonneville, placing man in Utah back 7,000 to 8,000 years. The San Juan region was visited to verify work done by the University of Utah in previous years, with special reference to certain pots of a Chaco type which came from the Mesa Verde area. This trip involved some exploration and a little digging. Finally, the remainder of the season was spent in the Sevier desert region of western Utah. Here we found adobe-walled houses of Pueblo II type, clay figurines probably like those of the Fremont culture, and kivas with a surprising resemblance to those of the San Juan.

J. H. Steward,

University of Utah

The archaeological survey of the Southwest, begun by Messrs. Wm. H. Claffin and Raymond Emerson in 1927, has been pursued each year since that date, and, during the summer of 1930, reconnaissance and excavation were carried on in the area along the Colorado river, north of that which has been previously covered. This is, roughly, the country centering around the Colorado river with the Green. The results of this expedition, which was under the charge of Mr. Henry B. Roberts, belong in next year's report.

Edward Reynolds,

Peabody Museum,

Cambridge, Massachusetts

During the months of July and August, Dr. Charles Van Bergen led the Van Bergen-Los Angeles Museum field party into San Juan county, Utah, near Navajo mountain, where work was done in four different sites. Two caves were thoroughly explored and a number of Basket Maker specimens were recovered, as well as evidences of some intrusive Pueblo culture. Especially worthy of note are six fine atlatl foreshafts in pristine condition, two medicine bundles, and fine examples of basketry and woven sandals. Each cave contained a number of empty rock cists. A portion of an extensive Pueblo ruin standing on a mesa, known locally as Lost Mesa, near the northeast slope of Navajo mountain was excavated. The entire mesa top was mapped by the expedition. One kiva and two or three rooms were completely excavated. The expedition also worked in a small cavate dwelling and granary about one mile northwest of the mesa. We named it Little Granary House. Architecturally it was a gem. There were five perfect granary rooms and the remains of two dwellings, from one of which we obtained a perfect reconstruction of a roof. Sections of a beam from this ruin, when compared and studied by Mr. John McGregor, of the University of Tucson, tied in with charred beams taken from the kiva on the mesa.

Arthur Woodward,
Los Angeles Museum

West Virginia. During July, a field party of the Museum of the University of Pennsylvania, under the direction of Mr. Charles Bache and including the writer, partially excavated a conical mound on the east bank of the Ohio river at Beech Bottom, West Virginia, fourteen miles north of Wheeling. It measured 22 meters in diameter at the base and 4 meters in height. Indications are that the entire mound was erected in connection with one sub-surface burial, 2 meters west of center. The grave was bark-lined with no sign of a log sepulcher. The skeleton was decorated with hundreds of copper and shell beads, all the shell being of Gulf coast species. The mound was constructed of yellow surface soil and of dark loam, the latter brought from some distance or from the river bank 25 feet below. The dark earth was used to fill the grave and was spread over the surrounding surface. All objects, except a few minor ones believed to have been accidentally introduced, were in association with the dark soil. Deposits of objects included stemmed and leaf-shaped blades, celts, red and yellow ocher, and nine complete and thirteen fragmentary clay-stone tubes, essentially identical with the tubular pipes assigned by Shetrone to the Adena culture. A number showed evidence of combustion on the inside; one contained a burnt clay, another a burnt wooden pellet. There were also some other evidences suggesting Adena affiliations. The positions of the broken tubes and a few broken blades were such as to indicate their intentional breakage.

Linton Satterthwaite, Jr.,
Museum of the University of Pennsylvania

Wisconsin. Indian history surveys have been undertaken by the State Historical Museum in several important lake regions in Wisconsin. Two important archaeo-

logical collections, both made in the Rock River valley, have been added to the extensive collections in the museum. The Indian trails of the state have been mapped and are being further perfected as opportunities offer. With the cooperation of the clubs of the Wisconsin Federation of Women's Clubs, metal and other markers have been placed on several trails. The exploration of a number of mounds and burial places has been supervised. During both the regular session and the summer session of the University, pilgrimages to village sites, mound groups, flint workshop sites, and other archaeological features were conducted by the State Museum.

C. E. Brown,
State Historical Museum of Wisconsin

The assistance rendered to the State Survey by the members of the Wisconsin Archeological Society by sending in information describing unrecorded and other archaeological features has been excellent. Present records show 11,600 earthworks and over 600 camp and village sites in Wisconsin. Mound explorations were conducted in Octonto, Waupaca, Rock, and Dane counties. A number of additional prehistoric effigy mounds have been permanently preserved. Markers have been placed on many mounds, village sites, and trails. Several state and University departments have cooperated with the Society in its exploration and other work.

C. E. Brown,
Wisconsin Archeological Society

An archaeological expedition of the Milwaukee Public Museum, led by W. C. McKern, spent two months in excavating mounds in the Schwert group, Trempealeau county, Wisconsin. Ten small mounds, from two to seven feet in height, and from thirty to eighty feet in diameter, and two campsites were examined. A uniform culture of Hopewellian type was represented by the data taken from these sites. All the mounds examined were burial tumuli. The burials were invariably compound, containing the remains of from two to forty-five individuals, and were centrally placed either in rectilinear, bark-lined, sub-floor pits or on rectilinear floor areas previously cleaned of all humus-discolored soil. The bodies of the deceased had either been interred extended in the flesh or were represented by reburials of bundled, disarticulated bones. Although all skeletal parts were in a very advanced state of decomposition, a few crania were sufficiently intact to show a pronounced artificial flattening of the occiput. Numerous artifacts found associated with the burials included: large chipped-stone knives and projectile points, from 5 to 11 inches in length, fashioned of quartzite, chert, jasper, chalcedony, and obsidian; flat copper celts; independent halves of copper ear spools with centrally placed pearl beads; hemispherical wooden buttons covered with sheet silver and perforated for purposes of attachment; tubular beads rolled from thin sheet copper, arranged in parallel sequence to form necklaces; conical pendants rolled from sheet copper; conjoined tubes of copper enveloping reeds; a long copper awl; pottery characterized by rouletted intaglios decorating the outer surface. The data obtained from

this work greatly increase our knowledge of the Wisconsin variant of the basic Hopewell culture.

W. C. McKern,
Milwaukee Public Museum

The Neville Public Museum, at Green Bay, has conducted surface surveys of various localities in its own and surrounding counties. Its superintendent has excavated mounds and burial places in several surrounding counties with interesting results. Plans for the organization of a local archaeological society, and of a systematic survey of Brown and surrounding counties, are under consideration.

T. T. Brown,
Neville Public Museum

During the summer, Mr. Louis Schellbach, of the Museum of the American Indian, Heye Foundation, excavated a bird-shaped effigy mound near Gresham, Wisconsin. No noteworthy results were obtained.

G. G. Heye,
Museum of the American Indian,
Heye Foundation

Alabama Anthropological Society	Alabama
Alabama Museum of Natural History	See p. 294
American Museum of Natural History	Arizona, Colorado, New Mexico
Arizona State Museum	Arizona
Bureau of American Ethnology	Florida, Nevada, New Mexico, Texas
Carnegie Institution of Washington	New Mexico
Colorado Museum of Natural History	See p. 301
Cook Museum of Natural History	Nebraska
East Tennessee Archaeological Society	Tennessee
Field Museum of Natural History	Colorado
Indiana Historical Bureau	Indiana
Laboratory of Anthropology, Santa Fe	Illinois
Logan Museum, Beloit College	New Mexico, North Dakota
Los Angeles Museum	Arizona, Utah
Medallion, Gila Pueblo	Arizona
Milwaukee Public Museum	Wisconsin
Mississippi Department of Archives and History	Mississippi
Museum of the American Indian, Heye Foundation	Canada, Wisconsin
Museum of New Mexico	New Mexico
Museum of the University of Pennsylvania	Alaska, New Mexico, West Vir- ginia
National Geographic Society	Arizona
National Museum of Canada	See p. 298

Neville Public Museum	Wisconsin
New York State Archeological Association	New York
Northern Arizona Society of Science and Art	Arizona
Ohio State Archaeological and Historical Society	Ohio
Peabody Museum, Cambridge	New Mexico, Utah
Phillips Academy, Andover	See p. 299
Rochester Museum of Arts and Sciences	New York
San Diego Museum	California
School of American Research, A.I.A.	New Mexico
Society for Pennsylvania Archaeology	Pennsylvania
Southwest Museum	California, Nevada
State Historical Museum of Wisconsin	Wisconsin
State Historical Society of Iowa	Iowa
State Historical Society of North Dakota	North Dakota
Texas Archaeological and Paleontological Society	Texas
U. S. National Museum	West Indies. Alaska; Arizona, and see p. 301
University of Arizona	Arizona
University of Arkansas	Arkansas
University of Chicago	Illinois
University of Colorado	Colorado
University of Denver	See p. 301
University of Illinois	Illinois
University of Kansas	New Mexico
University of Kentucky	See p. 303
University of Michigan	Michigan
University of Minnesota	New Mexico
University of Nebraska	Nebraska
University of New Mexico	New Mexico
University of Texas	Texas
University of Utah	Utah
E. K. Warren Foundation, Three Oaks, Michigan	Canada, Michigan
West Texas Historical and Scientific Society	Texas
Wisconsin Archeological Society	Wisconsin

CARL E. GUTHE, *Chairman*

ANTHROPOLOGICAL NOTES AND NEWS

AMERICAN UNIVERSITY OF BEIRUT

There is no Department of Anthropology in the American University of Beirut, but a committee has been formed for fostering anthropological and ethnological interests by a series of popular lectures and publications. In a statement circulated by this committee the hope is expressed that in time some students will become interested in the problems of their own races and cultures in the Far East.

The following lectures were given in 1929-1930 and popularized through publication in Arabic in "Al-Kulliyyeh"

What is Anthropology, by William T. Van Dyck.

On the Brain and on Some Mental Activities of Prehistoric Races, by C. U. Ariens Kappers.

Racial Pathology, by Harold Krischner.

The following lectures have been arranged for 1931-1932:

Gesture Language in Syria, by Anis Freyha.

Basal Metabolism and other Physiological Measurements of Racial Groups in Syria, by Edward L. Turner.

Remains of Prehistoric Man in Syria, by Harry Gaylord Dorman.

BISHOP MUSEUM

The Bishop Museum Expedition to the Tuamotus has completed its fieldwork, and its members, Kenneth P. Emory, J. Frank Stimson, and Harry Shapiro, are working on material for publication. A matter of great interest is the recovery of a series of chants addressed to Kiho, the little-known principal god of the Polynesian pantheon. Prior to this discovery the only extensive documentary evidence relating to Kiho came from New Zealand and is, on the whole, less satisfactory than the chants now recorded. Plans were made of a great number of marae, and the knowledge so gained, combined with knowledge drawn from other sources, will make possible a reconstruction of the history of the various types of structure included in the term marae. Interesting data on the distribution of physical types was also secured.

H. D. Skinner has been doing local fieldwork in Tahiti, under the auspices of the Bishop Museum, as part of a research on the ground stone cutting implements of Polynesia.

Dr. Peter H. Buck (Te Rangi Hiroa), whose work on Samoan Material Culture (B. P. Bishop Museum Bulletin 75) was published last year, is at present preparing manuscript on the ethnology of the Cook Islands, in which he spent fifteen months during 1929-30.

Dr. E. S. Craighill Handy is working on an analysis and definition of the ancient Hawaiian culture.

Willowdean C. Handy has prepared a manuscript on "Marquesan Art."

Alfred E. Hudson is working on the archaeology of a portion of the island of Hawaii.

J. Gilbert McAllister has completed an archaeological survey of Oahu.

John E. Reinecke made a survey of the archaeological sites in Kona, Hawaii.

Laura M. Thompson is making a detailed investigation of Melanesian pottery and Guam artifacts.

Robert P. Lewis has been making a systematic search for Hawaiian featherwork throughout the world.

Bruce Cartwright is working on the history and traditions of Kauai and Oahu.

Paul T. Diefenderfer is recording details of Samoan life.

Dr. Panchanan Mitra has returned to the University of Calcutta, after making comparative studies in American and European museums of the Hindu-Polynesian culture traits.

Thomas G. Thrum continues his translating of Hawaiian literature.

Fellowships have been granted for 1931-32 to Gordon MacGregor, who will make an expedition to the Gilbert and Ellice Islands, and to Edwin G. Burrows, who will study Polynesian music.

LABORATORY OF ANTHROPOLOGY (SANTA FE)

An expedition led by Dr. Albert B. Reagan in 1930, and under the direction of the Laboratory of Anthropology, examined thirty-seven anciently inhabited caves in the Uintah basin in northeastern Utah, obtaining mummies, tools, and implements of both Pueblo and Basket Maker cultures. It also examined eleven earth-lodge Pueblo villages of the Willard (Utah) stage of Pueblo culture. Squarish stone houses, built of undressed river cobbles, were also found in the Brush Creek section; and forts, cliff houses, and towers in Nine Mile canyon, east of Price, Utah. Two hundred and thirty-four groups of pictographs were also photographed, which show four somewhat successive stages of ancient culture, Basket Maker, Puebloan, a people who made circular-bodied drawings of human beings, probably patterning their drawings after the round faces of the sun and moon, and a "head-hunting" people who made square-shouldered drawings of human beings. The glyphs show that the last two had some customs that were like those of the southern California Shoshoneans. They also seem to show that the Basket Makers were also of the Ute-Chemehuevi division of the Shoshonean family. The "Head Hunters," who finally expelled the Pueblo from the region depict themselves time upon time as returning from battle with captive Pueblo women and children and the heads of the Pueblo braves who dared defend their homes.

The work of this expedition is to be continued during 1931.

LOGAN MUSEUM

Dr. George L. Collie, who has been Director of the Logan Museum since its inception in 1893, will resign from this position in June. At the same time he will

resign from the Professorship of Anthropology in Beloit College. Mr. Paul H. Nesbitt, Associate Professor of Anthropology in Beloit, will succeed him.

The investigations carried on by the Logan Museum in the Mimbres field for the past two summers will be continued through the coming summer at the Mattock's ruin, Mimbres, New Mexico. The work will be in charge of Mr. Paul H. Nesbitt. Five Beloit College students, taking work in the Department of Anthropology, will accompany the expedition.

The work of the Logan Museum for the past two seasons in Mandan territory will also be prosecuted this summer under the guidance of Mr. A. W. Bowers, a graduate student of anthropology in the University of Chicago. Four Beloit College students of anthropology will join the expedition. The investigations will be carried on in Arikara territory in order, if possible, to determine the relations between the Mandan and the Arikara during the earlier periods of their joint relationships.

Mr. A. W. Pond, for many years a research assistant in the Logan Museum, will resign from his position July 1st. His work has been carried on chiefly in Palaeolithic sites in France, the Sahara desert, and in northern Algeria; he was also with the expedition of the American Museum of Natural History in the Gobi desert for one season. Mr. Pond has not announced his plans for the future.

LOS ANGELES MUSEUM

Through the continued interest of Mr. Roscoe P. Conkling of El Paso, Texas, the Los Angeles Museum was advised of a second cave occurrence in the Organ mountains of New Mexico. This site, now known as Shelter cave, occurs on the west flank of the range, in a straight line approximately 2 miles west and south of Conkling cavern. Excavations in the cave were conducted by a Los Angeles Museum field party and completed during the summer of 1930. Remains of extinct mammals were encountered in the deposits and represent among other forms the peculiar antelope *Tetrameryx*, ground sloth (*Nothrotherium*), camel, and horse. The presence of a Basket Maker culture made it particularly desirable to study the field relationships of the human and extinct mammal records.

The collection secured from Shelter cave is now at the Museum and portions of it are being studied by Chester Stock and by Hildegard Howard.

SOCIAL SCIENCE RESEARCH COUNCIL 1930-1931

Research Fellowships in the Social Sciences

The seventh annual awards of Research Fellowships were announced in February, 1931. Twenty-four new Fellows were appointed for 1931-32, and two extensions of 1930-31 fellowships were made. The total amount involved in these awards approximated \$75,000. Since the inception of the fellowship program in 1925, a total of 139 persons have been awarded Research Fellowships, with stipends aggregating over \$435,000.

As in previous years, the major objective of these fellowships continues to be the development of more adequately trained research investigators rather than the

immediate execution of specific pieces of research. The holders of fellowships ordinarily have a year (in exceptional instances a somewhat longer period) entirely free from teaching and other duties, in which to secure further field training or clinical experience, to become acquainted with new points of view, schools of thought, or experimental work, and in many instances to apply the techniques and procedures of related disciplines of their own special fields of activity. As initially approved by the Fellowship Committee, the Fellows are allowed to carry out their programs of study wherever it seems most desirable—in this country or abroad.

The basic stipend attached to these fellowships for a period of twelve months is \$1,800 for a single, and \$2,500 for a married, Fellow, with adjustments upward in case there are dependents. Supplementary allowances are granted to cover travel and incidental expenses as needed.

The Research Fellowships are open to both men and women of American or Canadian nationality provided (1) they are not over thirty-five years of age, and (2) they are the holders of the Ph.D. degree or its equivalent in terms of other types of training and experience. In rare instances, the formal requirements stated above may be waived.

The closing date for making application for 1932-33 is December 1, 1931, the awards to be announced not later than March 1, 1932. Further information and application blanks may be had by addressing the Fellowship Secretary, Social Science Research Council, 230 Park Avenue, New York City.

The following were among those appointed to Research Fellowships for the year 1931-32:

Herbert Blumer (Ph.D. Chicago). Instructor in Sociology, University of Chicago. Subject of study: "The History of Fashion in France as an Index to the Changes in Social Customs." Study in France.

Winthrop Niles Kellogg (Ph.D. Columbia). Associate Professor of Psychology, Indiana University. Subject of study: "The Influence of Human Environmental Factors upon the Behavior of the Anthropoid Ape." Study in the United States.

Harold Dean Carter (Ph.D. Minnesota). Subject of study: "The Heredity of Mental Traits based upon a Study of Twins." Study at Stanford University.

Grants-in-aid

During 1930-31 the Social Science Research Council awarded 33 grants-in-aid from 85 applications. The total amount involved in these grants is approximately \$23,000. Since the inception of its grants-in-aid program in 1927, the Council has allocated over \$90,000 to 127 individual research projects ranging over the fields of economics, history, political science, sociology, social psychology, anthropology, law, statistics, and education.

The grants-in-aid are open to mature scholars without reference to age, whose ability to do productive research has been clearly demonstrated. The project for which aid is sought must be well under way and promise significant results. Ordinarily the maximum grant does not exceed \$1,000. Wherever possible, institutions

to which applicants are attached are expected to contribute financially or with other special support. Grants may be used to defray such items as the investigator's living expenses while in the field, the costs of travel, clerical or statistical assistance, photo-stating, printing and stationery; but ordinarily not for the purchase of books or manuscript materials. A small portion of the Committee's budget for grants may be allocated to aid in the publication of significant manuscripts not of commercial value.

Further information and application forms may be had by addressing the Secretary of the Committee on Grants-in-Aid at the Council's New York City office, 230 Park Avenue.

The recipients of grants during 1930-31 included:

Alfred Irving Hallowell (University of Pennsylvania) to aid in the completion of a study of the Interrelationship between the Kinship Terms and the Social Organization of Cree-speaking Bands in the Environs of Lake Winnipeg.*

Bernhard J. Stern (Encyclopedia of the Social Sciences) to aid in the completion of a study of the Contribution of Lester F. Ward to Sociology.

Fellowships for Southern Graduate Students

The second annual awards of fellowships to Southern graduate students in the social sciences were made on March 30, 1931.

The new appointments for 1931-32 included:

William Allison Davis (A.B. Williams College; M.A. Harvard University). Instructor, Hampton Institute. Field of study: Anthropology.

Mark Hanna Watkins (B.S. Prairie College, University of Chicago). Field of study: Anthropology.

TULANE UNIVERSITY

(Department of Middle American Research)

The Department of Middle American Research of Tulane University has received a grant from the Rockefeller Foundation of \$15,000.00 a year for three years. These funds will be used for the complete cataloguing of the library and for publications. The following publications will be issued shortly, under the heading of Tulane University, Middle American Research Series: (1) *Ethno-Botany of the Maya*, by Ralph L. Roys. (2) *The Yearberers People, a Study of the Guatemalan Indians of Jacaltenango*, by Oliver La Farge and Douglas Byers. (3) A volume containing a series of papers written by members of our staff.

Mr. Juan Martinez, of Merida, Yucatan, has published a Maya-Spanish section of the *Motul Dictionary*. This Dictionary is of the greatest importance to all students of Maya language, ethnology, and archaeology, who should be very grateful to Mr. Martinez for his excellent work. The Dictionary is introduced by a reprint of Juan Coronel's *Grammar of the Maya Language*. The volume contains a total of 934 pages and can be ordered from Mr. Juan Martinez, Calle 25, No. 500, Merida, Yucatan, Mexico. The price is \$8.00.

YALE UNIVERSITY

(Department of the Social Sciences)

The Department of Economics, Sociology, and Government has been expanded, in the graduate field, to include two new divisions, Anthropology and Human Geography, and has changed its name to the Department of the Social Sciences. This development is a natural outgrowth of the work of the division of Sociology at Yale, which has always stressed the anthropological approach and the geographic influences on human society, and which will continue to offer the courses in anthropology in the undergraduate schools. The two new sub-departments will permit more graduate specialization in their particular fields. A special effort, however, will be made to correlate all the work in the social sciences, as, for example, by means of an interchange of faculty and students. Directors of Graduate Studies have been appointed for the various divisions as follows. For the old divisions, Professor Clive Day will continue to direct the work in Economics, Professor A. G. Keller the work in Sociology, and Professor Francis W. Coker that in Government. For the new divisions the following appointments have been made. Dr. Edward Sapir, of the University of Chicago, who has accepted a call to be Sterling Professor of Anthropology and Linguistics, will be Director of Graduate Studies in Anthropology, and Professor Ralph H. Gabriel, of the Yale history department, will direct the work in Human Geography.

The new division of Anthropology will include several faculty members already on the ground, namely, Dr. Clark Wissler, Professor of Anthropology, Dr. George Grant MacCurdy, Research Associate in Prehistoric Archaeology and Curator of the Anthropological Collection, and Dr. Cornelius B. Osgood, Instructor in Anthropology. These men, with Professor Sapir, will carry the bulk of the work in anthropology. The staff will also be increased next year by the appointment of Mr. John Dollard, now of the University of Chicago, as Assistant Professor of Anthropology, and Dr. Richard Thurnwald, Professor Extraordinary in the University of Berlin, who as Visiting Professor of the Bishop Museum will give seminars at Yale next year. Dr. Charles T. Lorum, former Chairman of Native Affairs and Director of Education in Natal, South Africa, who has been appointed Professor of Comparative Education, will devote some of his time to work in anthropology, especially the education of primitive peoples. Graduate courses in the Anthropology group will also be given by Professor Keller, Leyburn, and Murdock from Sociology and Professor Huntington from Human Geography.

The work offered by the division of Anthropology will include courses and opportunities for research in ethnology, cultural theory, primitive linguistics, and, to some extent, archaeology and physical anthropology. Graduate students will be expected to have a general acquaintance with the social science field and with psychological and sociological points of view. The emphasis throughout will be on culture and its historical and psychological interpretation. Opportunity will be given for field work, which in general will form part of the requirement for the doctor's degree.

The new program in Human Geography will require candidates for the degree

of Doctor of Philosophy (the Master of Arts degree will not be conferred in this subject) to divide their work among three groups of courses as follows: (1) Courses dealing with the natural environment. The faculty for this group will be drawn from the University departments of Geology, Botany, Zoology, and Forestry. (2) Courses dealing with human society. These are selected from the divisions of Sociology, both theoretical and applied, Anthropology, Economics, and Government. (3) Courses dealing with the adjustments of human society to the natural environment. This field will be covered by Professor Gabriel, Dr. Ellsworth Huntington, Research Associate in Geography, and by a professor of geography whose appointment has not yet been announced.

* * * * *

DR. WENDELL C. BENNETT, of Chicago University, has been appointed Assistant Curator of Anthropology in the American Museum of Natural History. His appointment will become effective September 1, 1931.

MR. H. J. BOEKELMAN has equipped a small vessel for shell heap exploration in and about the West Indies under the auspices of the Department of Anthropology in the American Museum of Natural History. Mr. Boekelman's scientific assistants are Junius Bird and Howard M. Mossman. Mr. Boekelman has made an intensive study of shell heap literature and has outlined a program covering a period of years for the excavation and study of shell heap problems relative to the shores of South America and the West Indies.

MR. RICHARD M. SNODGRASSE, a graduate student in the University of Chicago, will continue his archaeological investigations for the American Museum of Natural History this summer. He will give special attention to the Western Plains area in Colorado and Texas.

MR. SCUDDER MEKEEL, Research Assistant in Anthropology at the Institute of Human Relations, Yale University, will spend the summer months in ethnological field work among the Dakota Indians. Most of his time will be spent on the Pine Ridge reservation.

MR. CHARLES AMSDEN of the Southwest Museum is engaged in the preparation of a detailed study of the Navaho blanket; its origin and its history together with its relation to the prehistoric weaver's art in the Southwest.

THE WASHINGTON STATE MUSEUM formally opened its Oceanian Gallery on Thursday evening, March 12th. Mr. E. W. Gifford, of the University of California, installed the exhibit.

DR. ROBERT H. LOWIE was elected to membership in the National Academy of Sciences last April.

PROFESSOR AND MRS. RICHARD THURNWALD, who left Genoa about May 15th, 1930, for Port Said, Egypt, and thence to the Tanganyika Territory, East Africa, returned to Berlin the end of April of this year. On May 5, 1931, Professor Thurn-

wald resumed his lectures on ethnology and social psychology at the University of Berlin. Professor Thurnwald had been invited by the London International Institute of African Languages and Cultures to spend a year in the Tanganyika Territory, East Africa. Mrs. Thurnwald was of much assistance in making investigations among native women. Recent books of Professor Thurnwald are: *Soziologie der Naturvölker*; and *Primitive Economics* (in English).

DOROTHEA DEMETRACOPOULOU has been appointed as an instructor in the department of anthropology at the University of Washington for the academic year 1931-1932. She will handle the courses on social organization and folklore.

MR. VERNE RAY, a graduate student in the department of anthropology at the University of Washington, is continuing his field work in eastern Washington among the Sanpoil and the Lakes. Miss Velpha Walters, also of that department, is doing linguistic work with the Moses Columbia, an interior Salish tribe, under the auspices of the linguistic committee of the American Council of Learned Societies.

DR. PETER HENRY BUCK has been appointed lecturer in anthropology at Yale University. Dr. Buck was educated at the Aute Maori College and at the University of Otago. He graduated in medicine and became health officer for the Maori and later devoted himself to ethnographic research among the Maori. In 1927 he joined the Bishop Museum at Honolulu. His mother was a Maori princess.

ELSDON BEST, veteran Maori ethnologist, has signified his intention of retiring from the joint editorship of the *Journal of the Polynesian Society*.

DAVID TEVIOTDALE is working on the problem of the Maori in relation to the extinction of the moa (*Dinornis*) in the southern districts of New Zealand.

MR. ERWIN P. DIESELDORFF announces that in April 1931 Julius Springer of Berlin published his work entitled, *Kunst und Religion der Mayavölker*, at the price of 7 Marks 50. It can also be ordered from the author himself, whose address is Coban, Republic of Guatemala.

B. B. GARDNER, instructor in Anthropology at the University of Texas, has been appointed as Ralph Sanger Scholar at Harvard, where he will continue his studies in anthropology. He has been working with Professor J. E. Pearce on various problems in Texas archaeology.

"THE ARCHAEOLOGICAL SURVEY OF EASTERN COLORADO," the first official publication of the University of Denver Department of Anthropology, will shortly be off the press.

DALE KING, of the Department of Anthropology, University of Denver, has received a field fellowship from the Laboratory of Anthropology. He will do field work this summer in Arizona, under Dr. F. H. H. Roberts, of the Bureau of American Ethnology.

DR. THERKEL MATHIASSEN will excavate in the Angmagssalik area this summer.

DR. KAJ BIRKET-SMITH has just returned from Vienna and Yugoslavia, where he studied the museums.

BERTHOLD LAUFER, president of the American Oriental Society, delivered the presidential address at the Society's annual meeting held at Princeton University on April 7. The subject of his address was: "Columbus and Cathay, and the Meaning of America to the Orientalist." He discussed the deep influence exerted by ancient Oriental traditions on the mind and exploits of Columbus and gave an outline of the interrelations of Asia and America in ancient times. The address is being published in the *Journal of the American Oriental Society*.

ERIC J. THOMPSON, of the Field Museum staff, is conducting excavations in British Honduras and ethnological investigations in Guatemala.

FIELD MUSEUM will continue its excavations this summer at the Lowry ruin, southwestern Colorado. The project is to be in charge of Dr. Paul S. Martin. The work of preserving the masonry will proceed as the digging progresses. It is hoped that time will permit of further explorations for the burial mound and of more work in the kivas.

DURING the months of March and April, Mr. Malcolm J. Rogers conducted a survey, for the San Diego Museum of the early Yuman fishing villages located along the terraces of the now extinct Blake Sea. This great body of fresh water once covered much of the Colorado desert and the time between its inception and extinction has been estimated at one thousand years. Fish seem to have constituted the chief food item of these people judging from the innumerable patches of charred fishbone found. In addition to the recovery of ethnological material from this hitherto unknown Yuman horizon, valuable information relative to early Yuman and Shoshonean culture boundaries was obtained.

REVEREND DR. EDWARD ASHLEY, who had spent fifty-eight years as a missionary among the Sioux Indians, died at Chamberlain, South Dakota, on March 30th, aged seventy-seven years. A small periodical known as Anpao ("The Daybreak"), valuable to the student of the Dakota dialects, was established by several missionaries at Greenwood in the present South Dakota in 1878, suspended for want of funds in 1882, but revived four years later by Reverend J. W. Cook and Dr. Ashley. During his long life among the Indians he became so familiar with the Sioux language as to enable him, in coöperation with other Episcopal missionaries, to translate the Bible, prayer-book, and hymnal into that tongue. In recognition of these labors he was given the degree of LL.D. by the University of South Dakota in 1911.

MR. EMIL TORDAY, known for his work on the anthropology of Africa, died on May 9, 1931, aged 56 years.

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THE RELIGIOUS ORGANIZATIONS OF NORTH CENTRAL CALIFORNIA AND TIERRA DEL FUEGO¹

By E. M. LOEB

IN 1929 I published a paper entitled *Tribal Initiations and Secret Societies*.^{1a} In the same year Father Schmidt published that section of his monumental work on *The Origin of the Idea of God* which dealt with the religions of the most primitive tribes of the Americas.² Both of us were impressed with the degree of similarity existing between the religious cults and beliefs of the native tribes of Tierra del Fuego (Ona, Yahgan, and Alakaluf) and those tribes of north-central California who practiced the "Kuksu" cult. We agreed in assigning certain of the resemblances to the archaic cultures to be found in both localities. In addition, however, I felt that other similarities were due to the world wide diffusion of four significant traits of tribal initiation. These were (1) the use of the bullroarer, (2) the impersonation of spirits, (3) the "death and resurrection" ceremony, and (4) the making of a tribal mark on the candidates.

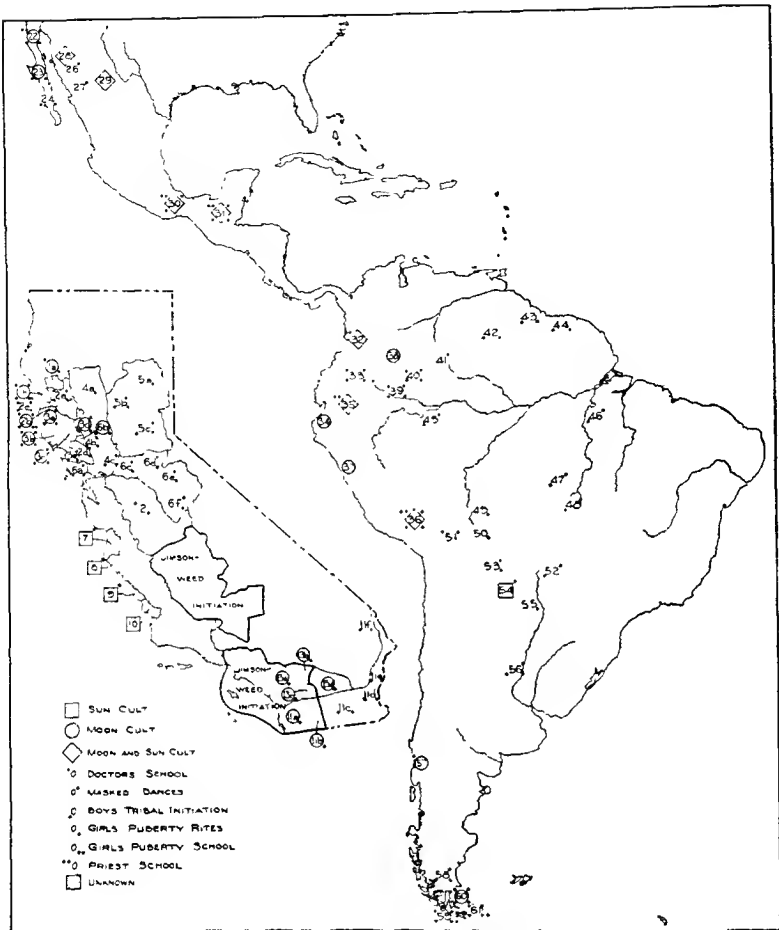
Since writing my original paper, I have had opportunity of personally investigating all of the tribes of north central California who originally practiced the western form of the Kuksu cult,³ and my ideas on the cultural connections between California and Tierra del Fuego have become amplified. I therefore submit the following provisional theories: (1) That there was an archaic trait of initiation (tribal for boys and individual for girls) which was brought in by the Indians when they entered the New World. The boys' initiation included the above mentioned traits, while the girls' initiation was fundamentally based on the taboo of menstruation. The girl

¹ Read before the meeting of the American Association for the Advancement of Science, at Pasadena, California, June, 1931.

^{1a} See Bibliography.

² See bibliographic reference I under Schmidt.

³ The western form of the Kuksu cult is both the simpler and the more archaic. Unlike the eastern Patwin form, it is comparatively free from Northwestern "possessional" ceremonies. I am chiefly taking the western form into account in this paper and am summarizing from my paper on *The Western Kuksu Cult*.



MAP 1. Distribution of various religious features.

1a, Wailaki; 1b, Kato; 2a, Yuki; 2b, Huchnom; 2c, Coast Yuki; 3a, Northern Pomo; 3b, Central Pomo; 3c, Eastern Pomo; 3d, Southeastern Pomo; 3e, Southern Pomo; 4a, Central Wintun (Nomlaki); 4b, Southwestern Wintun (Patwin); 4c, Southeastern Wintun (Patwin); 5a, Northeastern Maidu; 5b, Northwestern Maidu; 5c, Southern Maidu (Nishinam); 6a, Coast Miwok; 6b, Lake Miwok; 6c, Plains Miwok; 6d, Northern Miwok; 6e, Central Miwok; 6f, Southern Miwok; 7, Monterey Costanoan (Rumsen); 8, Esselen; 9, Playano Salinan (doubtful); 10, Obispoño Chumash; 11a, Northern Diegueño; 11b, Southern Diegueño; 11c, Kamia (doubtful); 11d, Yuma; 11e, Halchidhoma (now Chemehuevi); 11f, Mohave; 12, Northern Valley Yokuts; 13a, Luiseño; 13b, Pass Cahuilla; 13c, Mountain Cahuilla; 13d, Desert Cahuilla; 22, Cochimi; 23, Pericués; 24, Waicura; 25, Seri; 26, Yaqui; 27, Mayo; 28, Opatá; 29, Tarahumara; 30, Aztec; 31, Maya; 32, Chibcha; 33, Uitoto; 34, Cañari; 35, Cultured tribes of Ecuador; 36, Inca; 37, Chimu; 38, Panche; 39, Okaina; 40, Bora; 41, Kaua; 42, Makuschi and Taulipang; 43, Carib (Guiana); 44, Aruak (Guiana); 45, Ticuna; 46, Karaja; 47, Bororo; 48, Bakarai; 49, Guarayu; 50, Yuracara; 51, Aymara; 52, Camacoco; 53, Chane; 54, Churupa; 55, Ashluslay; 56, Lengua; 57, Araucanian; 58, Tehuelche; 59, Alakaluf; 60, Ona; 61, Yahgan.

was isolated and, among many other and varying traits, made use of the scratching stick and drinking tube. (2) That a system of masked dances originated somewhere in or around the region of higher cultures of the Americas and extended its influence as far as, and no further than, north-central California.⁴ This influence was responsible for the true Kuksu cult (secret society) as opposed to the old Ghost Dance religion (tribal initiation). The tribes of Tierra del Fuego acquired the use of masks in their tribal initiations from this source.

I will now summarize first the religious cultures of the tribes having the western Kuksu religion and then the religious cultures of the tribes of Tierra del Fuego. Next I will point out the similarities in tribal and individual initiations from the northwest coast of North America to Tierra del Fuego. Finally, I will show how certain younger traits connected with secret societies arose in the regions of higher cultures of the Americas and spread north and south.

THE WESTERN KUKSU CULT

CENTRAL COAST POMO⁵

Boys' initiation.—This was part of the old Ghost Dance religion. The initiators represented both ghosts and clowns. The sound of the bull-roarer represented the voice of the dead. The boys underwent a death and resurrection ceremony. No tribal mark was given. The ceremony lasted four days. A special house was built for the event, and women were rigorously excluded. All boys went through the initiation.

Secret society.—All the shamans and leading men and women belonged to the society. The purposes of the society were initiations and curing. The ceremonies lasted four days, and took place in a brush house. The central idea of the initiations was death and resurrection of the candidates. The initiations were called "cutting," but no tribal mark was inflicted on the candidates. In the initiations Kuksu⁶ and bear (*Canis*) were impersonated. Neophytes were taught the use of bullroarers.

Girls' puberty ceremony.—This was characterized by use of a menstrual hut, dietary restrictions, prohibition of loud conversation and obligation to employ the scratching stick. The ceremony lasted four days.

Doctors' school.—Included under Secret society, above.

⁴ I agree with Kroeber in excluding the Northwest coast from regions influenced by Central American culture (Kroeber, I).

⁵ The religions of the Central Coast and Eastern Pomo are fully described in my Pomo Folkways (see Bibliography).

⁶ Kuksu is a localized name for the sun-moon culture hero of central California. His large feather headdress gives him the more widely known name of "Big Head."

Mythology and sundry beliefs.—Coyote made the earth. He also made Kuksu and Kuksu woman. The sun and the moon were identified.

NORTHERN POMO (SHERWOOD)

Boys' initiation.—This was part of the old Ghost Dance religion. Only certain boys were admitted, and these were given religious instruction by the ghosts. The initiators represented both ghosts and clowns. The name of the ceremony symbolized death and resurrection. The boys used scratching sticks. Bullroarers were swung. The boys had their ears and noses pierced at the time of the initiation, and were symbolically marked with ashes. The ceremony lasted four days. The ordinary sweat-house was used, but women were rigorously excluded.

Secret society.—The society existed solely for curing, and its membership consisted of men and women who had undergone initiation. (See above, under Boys' initiation, and below, under Girls' puberty ceremony, school, in this section.) Big Head and ghosts were impersonated, and the bull-roarer swung in curing.

Girls' puberty ceremony.—The girl was kept in the house. She was not allowed to eat or drink for the four days of the ceremony and had to use the scratching stick. A dance was performed for the girl. Finally she was washed, given new clothing, and a general feast was held. This was a period of sex license.

Girls' puberty ceremony (school).—Only certain girls were admitted, and these were given religious instruction by a ghost. The girls were given no food or water for four days, and they used the scratching stick. The girls had their ears and noses pierced at the time of the school. Men, other than the ghost and firemen, were excluded from the ceremony, and the girls had to be covered up when they went outdoors. The inmates of the school were below puberty age. A small sweat-house was built for the occasion.

Doctors' school.—Male and female outfit doctors were trained at a boys' initiation or a girls' puberty ceremony school. Sucking doctors received visions and afterwards were given individual instruction.

Mythology and sundry beliefs.—Big Head created the world by the power of the "word." Thunder Man was the father of Big Head. Thunder Man gave the people their arts. The moon was worshiped because of its "renewal" value. The sun was identified with the moon. Big Head was not identified with the moon. He was called "the powerful one."

KATO

Boys' initiation.—This was part of the old Ghost Dance religion. All the boys went through the initiation, and women were rigorously excluded. The

ceremony took place in the regular sweat-house and lasted all winter. The chief gave instruction in the school. Ghosts and clowns were represented by the initiators. The bullroarer represented the voice of the ghosts. No tribal mark. No death and resurrection ceremony.

Secret society.—Only certain of the elder boys went through the doctors' school. A few of these received visions and became sucking doctors, while the remainder became singing doctors. The same initiators represented both ghosts and clowns. Big Head was impersonated in the school. The ceremony lasted all winter, and instruction was given by the chief. The pupils were subjected to ordeals, and were dropped from the course if they failed to pass. The boys kept strict diet, and used the scratcher. The bullroarer was swung. The boys were given a death and resurrection ceremony by being thrown out of the smokehole of the sweat-house. No tribal mark. Women were rigorously excluded from the sweat-house at the time of the school.

Girls' puberty ceremony.—The girl was put on a hot bed in the house. She was kept on a strict diet for the six days of the ceremony, and had to use a scratcher. At the end of this period a feast was held, and the girl was washed and given new clothing. This was a period of license.

Girls' puberty ceremony (school).—Certain girls below the age of puberty were admitted. A few of the girls were made sucking doctors and the remainder singing doctors. Instruction was furnished by the chief and elderly women doctors. No spirit impersonation. No tribal mark. No ordeals. The girls were put on a strict diet, and used scratching sticks. The school lasted six months in the sweat-house.

Doctors' school.—See above in this section under Secret society, and Girls' puberty ceremony, school.

Mythology and sundry beliefs.—Thunder Man was more powerful than Big Head. The human race was born from the wife of Big Head. Big Head gave the people their arts and customs. The moon was worshiped because of its "renewal" value. The sun was identified with the moon. Big Head (Nagaitco, Great Traveler) was identified with the moon.

YCKI

Boys' initiation.—This was part of the old Ghost Dance religion. All the boys went through the initiation, and women were rigorously excluded. The ceremony took place in the regular sweat-house and lasted all winter. A teacher gave instruction in the school. Ghosts and clowns were represented by the initiators. The bullroarer represented the voice of the thunder god. No tribal mark. The boys were given a death and resurrection ceremony by being thrown out of the smokehole of the sweat-house.

Secret society.—Only certain of the elder boys went through the doctors' school. A few of these received visions and became doctors, while the remainder became singing doctors. Big Head and the ghosts were not represented in the school but were impersonated in cures by members of the Secret society (the doctors' school graduates). The ceremony lasted all winter, and instruction was given by an old man. Only boys who showed exceptional promise were permitted to graduate from the course. The boys kept a strict diet. The scratching stick was not mentioned. The bullroarer represented the voice of Big Head and Thunder Man.

Girls' puberty ceremony.—The girl was put to bed in the house for four days. She was kept on a strict diet and had to use a scratcher. She was made to dance twice a day. This ceremony and the first acorn ceremony were mingled together. At the conclusion of the four days a feast was held, and the girl was washed and given new clothing. This was a period of license.

Girls' puberty ceremony (school).—Nothing is known about this school other than its existence.

Doctors' school.—See above in this section under Secret society and Girls' puberty ceremony, school.

Mythology and sundry beliefs—Big Head married his sister and thus established cohabitation. But he made the people from sticks. Big Head made or, according to another account, instructed Coyote to make the first ceremonies.⁷ The sun was identified with the moon. Big Head (Taikomol, He-who-goes-alone) was identified with the moon.⁸

WAILAKI

Boys' initiation.—None.

Secret society.—None.

Girls' puberty ceremony.—The girl was kept in the house for six, seven, or ten days. She was kept on a strict diet, and had to make use of a scratcher. She was made to dance twice a day. After the period a feast was held, and the girl was washed and given new clothing. The young woman had to refrain from meat for a year or two.

Doctors' school.—The school lasted a year. In the spring young men and women went up a mountain under the guidance of elder doctors to obtain visions. In the winter the boys (but not the women) danced in the sweat-house in order to obtain guardian spirits.

Mythology and sundry beliefs.—Big Head was not impersonated. He was

⁷ Kroeber, III, 184.

⁸ Two branches of the Yuki, the Coast Yuki and the Huchnom, have been omitted from the present paper because their cults resembled those of the Yuki proper. The cult of the northern Yuki resembled that of the Wailaki.

supposed to have come from the north and to have taught the people their arts and dances. He had certain trickster attributes. The sun was identified with the moon. Both the moon and Big Head were called by the same name, Ketanagai (Night Traveler).

EASTERN POMO

Boys' initiation.—This was part of the old Ghost Dance religion. The initiators represented ghosts and clowns. The sound of the bullroarer represented the voice of the dead. The boys underwent ordeals and a death and resurrection ceremony. No tribal mark was given. The ceremony was in part an annual mourning ceremony, for the return of the dead was a stressed feature of the cult. The ceremony lasted four days, and a special sweat-house was built for the occasion, from which women were rigorously excluded.

Secret society.—The head of the society was a shaman, and the society itself worked cures, but most of the shamans were outside of the society. The purposes of the society were ritualistic displays, health giving, and individual initiations. The ceremony was conducted in a brush enclosure in the summer. The main acts were as follows: the pole climb, the rattlesnake dance, the bird imitation, the swinging of bullroarers in imitation of thunder, and the cutting of the boys and girls as a final rite. Kuksu, a god named Calnis, the bear, and a god named Masan Batin were impersonated.

Girls' puberty ceremony.—The girl was kept on a hot bed in a separate house for four or five days. She maintained a strict diet and used the scratching stick. She had her ear lobes punched at this time. At the end of the period the girl was washed and given new clothing, and a small feast was held. At this time the young girl was instructed in the duties of womanhood, including the preparation of acorn meal.

Doctors' school.—None.

Mythology and sundry beliefs.—The Eastern Pomo believed in a high god called Marumda. Marumda and Kuksu together made the earth. Similar to the Aztec creation story, there were four cataclysms; by flood, fire, snow, and whirlwind. In each case mankind was destroyed and re-created. The sun and moon were identified.^{8a}

SOUTHERN POMO

Boys' initiation.—This was part of the old Ghost Dance religion. The initiators represented ghosts. Bullroarers were used. The ghosts carried snakes with them down from the hills. The ceremony lasted four days and

^{8a} The complete Eastern Pomo creation story has recently been obtained from the informant Benson. It will be published shortly by J. de Angulo.

a special sweat-house was built for the occasion, from which women were rigorously excluded.

Secret society.—The dances were held four times every year in the summer, partly in the open and partly in a brush house. They had as their object the celebration of the ripening of the crops (acorns, manzanita berries, tobacco plants, and angelica), and were not connected with curing. Kuk-su and the bear were impersonated. Boys were initiated by a pretended cutting. Women were in the society, but nothing is known of their initiation. Bead sacrifices were made to the bear.

Girls' puberty ceremony.—The girl was put to bed for four days in the house. She was kept on a strict diet, and had to use the scratcher. While in the house she was sung over. At the end of the period she was taken down to the river and made to swim.

Doctors' school.—None.

Mythology and sundry beliefs—Coyote made the earth and mankind. The sun was not identified with the moon.

THE WAPPO⁹

Boys' initiation.—The old Ghost Dance religion did not exist among the Wappo except in their mythology.

Secret society.—The members of the society, all males, were called doctors. They were not necessarily doctors, however, nor did the society perform cures. The general purpose of the dances and the initiations was health giving. The ceremony was either a four or seven day affair, and was given in the summer in the brush house if there was sickness in the village. There were two ceremonies. The first consisted in the Kuksu cutting the boys. The second was the impersonation by a society member of both a ghost and a clown. He was supposed to be a dead person returned to earth. The women were forbidden to see the Kuksu, but allowed to look at the ghost. No bullroarers were swung in the ceremonies.

Girls' puberty ceremony.—The girl was kept in the house for ten days, for the first four of which she had to keep to her bed on a strict diet. Partial silence was imposed. The girl used the scratching stick. She was bathed at the end of the four day and the ten day period. No feast was held over her.

Doctors' school—None.

Mythology and sundry beliefs.—Coyote was the creator. Kuksu was a

⁹ It is to be hoped that Dr. Paul Radin will publish presently more of his valuable material on the Wappo. He has told me in conversation that the Wappo had a practically complete couvade, and that when the man arose from his bed at this period he had to leave a stick as substitute. This is the only report of the complete couvade for California, but Venegas (p. 81) reports the custom for the tribes of Lower California.

god of the south and was identified with the moon in the mythology. The sun and the moon were identified.

COAST MIWOK

Boys' initiation.—This was part of the old Ghost Dance religion. The initiators represented wood spirits rather than ghosts of the dead. They also took the part of clowns. Bullroarers were believed by the women to be the voice of the spirits. The boys were kept on a strict diet and were thrown over the fire by the spirits. The ceremony lasted four days. A special sweat-house was built for the occasion, from which women were rigorously excluded.

Secret society.—Three ceremonies were given by the members of the Secret society. The ghost (pololo) ceremony was the most esoteric, and could only be witnessed by members. The Kuksui and the Kilak (crazy man) dances were given by members in the summer in the brush house and were witnessed by all. Membership in the society was open to adult men and women upon the payment of a fee. The initiation took four days and was conducted in the hills. The members were called "doctors."

Ghost ceremony.—This was really an annual mourning ceremony, and was held in the sweat-house in the winter. Both men and women members of the society were in the sweat-house, and personified the ghosts. If a non-member entered the sweat-house he or she was fined and initiated into the society. The ceremony lasted four days. The ghosts ran down from the hills carrying small trees on their backs. They were mourned over by people who had recently lost relatives. A bullroarer ceremony was enacted. Finally all the members bathed in the river and feasted.

Kuksui ceremony.—This ceremony was enacted any time of the year in response to a vow made by a sick person. The gods Kuksui and Calnis were impersonated, and likewise the bear. Sick people were cured by the impersonators. Bullroarers probably were used.

Kilak ceremony.—This impersonation was performed in response to a vow made by a sick person. The dance was enacted by male members of the Secret society.

Girls' puberty ceremony.—During the four days of the ceremony the girl was kept on a hot bed, either in the house or in a shelter outside. She was placed on a diet, and had to use the scratching stick. At the end of the period the girl was washed and given new clothing and a feast. This was a period of sexual license.

Doctors' school.—None.

Mythology and sundry beliefs.—Coyote was the creator. Kuksui was not identified with the moon. The moon and sun were not identified.

LAKE MIWOK

Boys' initiation.—The old Ghost Dance was given by the members of the Secret society under a head man (yomta), and Kuksui was not impersonated. Only certain males, and no females, were brought into the society at about the age of ten by the yomta, and made to learn the dances.¹⁰ The ceremony was directed against the women, was a four day affair, and was held in the sweat-house. The boys were put on a diet and made use of the scratching stick. They were subjected to ordeals, and thrown out of the smokehole as a death and resurrection ceremony. The initiators played the parts of both ghosts and clowns.

Mourning ceremony.—The yomta had charge of the annual mourning ceremony, for which a pole was erected with an image on top. He also had charge of the annual spring ceremony, which was held when the first flowers blossomed (first fruits rite). The boys and girls who danced in this four-day ceremony carried rattlesnakes around their necks. They were not necessarily members of the Secret society.

Girls' puberty ceremony.—The girl was kept in her house for eight days. No hot bed. She was put on a diet, and made use of the scratching stick. At the end of the period she was bathed and given new clothing.

Doctors' school.—None.

Mythology and sundry beliefs.—Coyote made the human race. The sun and moon were identified, and there was a moon cult.

SOUTHEASTERN POMO

Boys' initiation.—This was part of the old Ghost Dance religion. The initiators represented ghosts and clowns. The ceremony lasted four days. The bullroarer was used. The boys were kept on a strict diet and used a scratching stick. They had to cover their heads with a blanket when they went outdoors to satisfy their needs.¹¹ They were subjected to severe ordeals by the clowns. The ghosts brought down snakes from the hills, which were afterwards used to cure sick people.

Secret society.—Both boys and girls were initiated into the Secret society by means of a cutting or stabbing (death and resurrection) ceremony. The society gave two ceremonies,¹² the Big Head ceremony and the bear ceremony. Each of these lasted four days and took place in a brush house.

¹⁰ The dances were considered very dangerous. The general attitude is similar to the Patwin Hesi. The Patwin and the Lake Miwok are neighbors.

¹¹ Among all the tribes listed the girl at puberty was prohibited looking around (especially at the sun and moon) when outdoors. Some head covering, among the Kato a basket, was used.

¹² Thus the Southeastern Pomo had three major ceremonies similar to the Valley Patwin.

In the Big Head ceremony the Kuksu gathered the boys and cut them on the back. In the bear ceremony a bear appeared and received offerings of beads from a woman member of the society. The neophytes were stabbed by a character called Salis (Calnis among the Eastern Pomo).

Girls' puberty ceremony.—The girl was kept in a special house for four days. She lay on a hot bed. She was kept on a strict diet, and made use of a scratching stick. No dance was held at the end of the period.

Doctors' school.—None

Mythology and sundry beliefs.—Scant.

TIERRA DEL FUEGO¹³

ONA

Boys' initiation.—This was called Kloketen. The initiators took the parts of spirits and clowns.¹⁴ All the boys had to go through this initiation. The rites were directed against the women, and the initiated were not allowed to reveal the secrets under penalty of death. The leader of the ceremony was the father of the oldest candidate. The Kloketen lasted for two or more months, and took place in a conical hut built for the purpose. Instruction was given the boys, and the origin story of the ceremony related to them. Conical masks were used in order to frighten the women. The masks were lifted at the beginning of the ceremony to show the boys that the impersonators were human. No bullroarers were used. The initiators were killed by one of the spirits, and came to life again. The candidates received scratching sticks at the beginning of the ceremony. They were subjected to silence and fasting. According to Lothrop (p. 93) the candidates had to prove their indifference to pain by allowing wood splinters thrust in their arms to burn themselves out against their flesh. This would have left permanent marks.

Secret society.—None.

Girls' puberty ceremony.—Not described in detail. There was an individual ceremony for the girls which was doubtless connected with food taboos, as among the Yahgan. Instruction was given the girls at this time.¹⁵

¹³ The comprehensive work on Tierra del Fuego by Gusinde has not, at the time of writing, reached final publication. My sources for the ensuing descriptions are Gusinde, I-V, Cooper, Koppers, and Schmidt, I and II. See Bibliography for the full citations of these works.

¹⁴ Spirits not ghosts were impersonated in Tierra del Fuego. With the exception of doctors, the souls of the dead were supposed at once to ascend to the sky and not to return. Gusinde (I, 335) mentions impersonations of hayilan, "grotesque, clownish people, through whose humorous and clownish behaviour the people are amused." Schmidt (I, 907) says that the clowns were obscene, and seemingly practiced pederasty.

¹⁵ I do not believe that the Ona originally had a common initiation for both sexes, as

Doctors' school.—The doctors' school was called Pešare. The Ona had actual inspirational shamanism, as did the Patagonians.¹⁶ The power of the doctor was strongest among the Ona, weaker among the Yahgan, and weakest among the Alakaluf. Among the Ona every shaman had as his guardian spirit the soul of a departed shaman. The guardian spirit sang through his medium. The neophyte doctor received instruction in the calling from an older member of the profession. The powerful doctors were all men, women doctors only attending their own sex. The school took place in a round hut, was for men alone, and existed for the purpose of gaining recruits for the profession. The neophytes fasted and sang in the hope of obtaining guardian spirits.

Mythology and sundry beliefs.—Apparently the mythology of the Ona was strongly influenced from original Peruvian and even Mexican sources. The moon (Krē) was the wife of the sun (Kren). Lothrop¹⁷ received a Quetzalcoatl story concerning the coming of bearded white men. An extinct eastern branch of the Ona, the Haush, considered the moon as a cannibalistic deity.¹⁸ Probably under influence from the same sources, the Ona conceived of a high god called Těmaukl. Like Quetzalcoatl of the Aztecs, Těmaukl raised the heavens in order to make room for the first men.¹⁹ The actual culture hero was called K'enos, and it was he who made the first man and woman. There was likewise a brother pair of culture heroes called Kwanyip. Like the tribes of the Upper Amazon and the Rio Negro basin who practised the secret Jurupari rites²⁰ the tribes of Tierra del Fuego had an origin story relating that the ritual was formerly in the hands of women, and later was seized by men. In common with many tribes of North and South America, the tribes of Tierra del Fuego had a story of the flood, and the transformation of human beings into animals.

YAHGAN

Boys' initiation.—This was called Kina. All the boys had to go through this ceremony in order to become tribal members. They first had to pass

claimed by Gusinde (II, 11). Such a ceremony is lacking to South America, with the exception of the Yahgan and Alakaluf. Among these people sexual dichotomy in religion is weaker than elsewhere on the continent.

¹⁶ Among the horse Indians of Patagonia shamanistic séances were carried on in a truly Siberian manner. The male shaman became possessed while in a violent convulsion. He aided the coming on of the seizure by beating a drum. There were no female shamans mentioned, but homosexual males (berdaches) dressed as women and acted the part. (Fitz-Roy, 2: 162, 163.)

¹⁷ Lothrop, 98.

¹⁸ Lothrop, 107.

¹⁹ Joyce, 47.

²⁰ Coudreau, 2: 186 ff. (quoted in Briffault, 2: 547).

twice through the Čiexaus (see below under Boys' and girls' tribal initiation). The Kina was a milder form of initiation than the Kloketen of the Ona, and was supposed, both by the natives and the investigators, to have been derived from the latter. The initiators took the part of spirits. The ceremony was directed against women, and the introduction of new candidates was of lesser importance than with the Ona. Certain trustworthy women, as well as women who had witnessed the ceremony by chance, were admitted to the hut, although they were not allowed to play the part of spirits.²¹ The leader of the Kina was a doctor. The ceremony among most of the Yahgan took place in a conical hut erected for the purpose. The leader related the origin story to the boys. Masks were used, as among the Ona, but they were not burnt at the end of the ceremony as among those people. The candidates were not subjected to rigorous ordeals and did not use scratching sticks. There was no bullroarer. The initiators had a death and resurrection ceremony as among the Ona.

Boys' and girls' tribal initiation.—Boys and girls were initiated in the same ceremony or school, the Čiexaus. The Yahgan claimed that they had obtained this ceremony from the Alakaluf. The school took place in a beehive hut, and lasted several months. Religious and secular instruction was given the candidates, who were subjected to severe diet and deprivations, and made use of hollow drinking tubes and scratching sticks. No masks were worn, but evil spirits were represented by the initiators for the purpose of frightening the children. Singing and dancing in the Čiexaus served to keep away the evil spirits. Boys were tattooed as a tribal mark.²² The initiators underwent a death and resurrection ceremony. At the end of the period of instruction, the novices were presented with baskets, hollow bones for drawing up water, and scratching sticks. At the same time, the candidates were given flat, painted slabs of wood. Gusinde states²³ that no explanation was given for this utensil.

Secret societies.—None.

*Girls' puberty ceremony.*²⁴—The first menstruation was called tuori, and subsequent menstruations sappa (blood). Bridges writes that the ceremony

²¹ Kroeber (II, 216) reports that in central California among the Coast Yuki aged women (i.e., past menopause) were admitted to the boys' tribal initiation.

²² Gusinde has kindly called my attention to the fact that I committed an error in my paper on Tribal Initiations and Secret Societies, p. 280. No new names were given the candidates, nor were they taboo after the ceremony. (Gusinde, II, 10.)

²³ II, 10.

²⁴ Gusinde evidently does not realize the importance of this ceremony, nor its relation to the tribal ceremonies of both girls and boys. He has not as yet furnished a description. My data were obtained from Bridges (II, 174) and Hahn (p. 805).

of the first menstruation was celebrated by the parents in the home. It was a four-day affair; the girl was obliged to conduct herself with gentleness, and to abstain from certain foods. Soon after she married.

Doctors' school.—The doctors' school took place in a round hut, like that used for the Kina. The school was called Lóima yékamuš. Like the Kina ceremony, the school was believed by the natives and by Gusinde to have come from the Ona. The school was open to men only, it lasted several months, and the candidates were put on a severe diet for the purpose of inducing them to dream. They sucked up their scanty allowance of water through a drinking tube. No instruction in the art of healing was given in the school. This was acquired later under individual instructors. Certain tricks of the trade were taught in the school, and Bridges once observed a Yahgan doctor dancing on hot coals.²⁵

The doctors among the Yahgan were seers and not inspirational shamans. Any man or woman who received a dream or vision could become a doctor if he or she wished to. The doctors were able to see and talk to their guardian spirits, who were the ghosts of dead medicine-men. An inner call was necessary to become a doctor: a man who had attended the school and yet failed to receive such a call was not considered a full fledged doctor. The doctors among the Yahgan were not so powerful as among the Ona.

Mythology and sundry beliefs.—The moon woman was married to the rainbow, who was the brother of the sun. The high god was called Watau-inewa, from the root uāta, old, very old. There was no story of a first man and culture hero, as K'enos of the Ona, but the twin culture heroes appeared. They were called Yoaloch, and had an elder sister. They were the first people and the culture bringers. The Yahgan, like the Ona, had the story of the stealing of the rites of initiation by the men from the women, and the transformation of the latter into animals. There was record of three world cataclysms: a glaciation, a world conflagration, and a flood.

²⁵ I, 221-241 (quoted in Cooper, 160). Fire walking was practiced among the ancient Maya. Joyce (p. 265) writes "to avoid disaster, ceremonies in honor of the gods included a dance around a huge fire, across which, when reduced to glowing ashes, the worshippers ran with bare feet." Gann adds (p. 183) that "the high priest was able to walk over burning embers barefoot and dressed in a long white dress made of tree bark. As soon as the priest had crossed, all the men began to run and dance across the embers." Among the Diegueño, Luiseño, and Cahuilla of California the male doctors formerly walked over hot coals (Waterman, 8: 284; Du Bois, I, 81; Hooper, 346). Among the Arapaho the ceremonies of the third day of the Crazy Dance were concluded with a spectacular dance through the fire with bare feet. (Kroeber, IV, 190).

ALAKALUF

Boys' initiation.—This was called Yinčihāua. All the boys of the tribe went through this ceremony after they had passed through the K'al'ak'ai (boys' and girls' tribal initiation). These rites were said by the Alakaluf to have come to them from the Yahgan. The ceremony still was directed against women, but the original significance had become so greatly lessened that women were allowed to take part in the closing acts. The sole purpose of the ceremony appeared to have been that of frightening the women. The neophytes played no special part. They were made acquainted with the nature of the spirits, and were sworn to secrecy. The women, however, had no great faith in the genuineness of the spirits impersonated. Among the southern Alakaluf the ceremony took place in a round hut, elsewhere in a beehive-shaped hut. Bark masks were used. The general nature of the rites was the same as among the Ona and Yahgan.

Boys' and girls' tribal initiation.—Boys and girls were initiated in the same ceremony or school, the K'al'ak'ai. Schmidt²⁶ writes that this corresponded in all important points to the Čiexaus of the Yahgan. The ceremony lasted for two or three months and took place in a beehive or round hut. Religious and secular instruction was given the candidates. As among the Yahgan all instruction was supposed to be under the mandate of the high god. The ceremony was directed by an elderly experienced man. The school ended with a feast in which the women took part.

It remains an open question as to whether or not the Alakaluf at one time had a tribal mark in connection with their initiations. Gusinde²⁷ denies any form of bodily mutilation among these people, even tattooing. He noticed, however, that a significant number of adult Alakaluf had one or more incisor teeth missing. He claims that in every case this was caused by mishap or a fight with the whites.²⁸

²⁶ I, 977.

²⁷ III, 548.

²⁸ Fitz-Roy (2: 197) first noted this peculiarity among the Alakaluf. Three of the natives in a canoe each lacked an upper incisor. Skottsberg (p. 252) observed that when teeth were missing among the Alakaluf it was usually among women, and then it was the upper incisors that were missing. He attributed this loss to accident or the nature of women's work, as chewing on hard hides. Schmidt (II, 1038) has noted that knocking out of teeth is rare in South America. Where the custom occurs, it is done as an initiation rite, and it is certain of the incisors which are knocked out. This was true of the Paresi, an Arawak tribe of Brazil, of the Huankavilka on the west coast of Ecuador, and of the Guayakil, a tribe of Peru. Nordenskiöld (lecture) mentioned the custom for the Cueva of Panama. McGee (p. 169) found that the female Seri had their medial superior incisors knocked out. Kroeber visited the Seri, but no longer found a trace of this custom.

Secret society.—None.

Girls' puberty rites.—Probably present, but not reported.

Doctors' school.—None. The doctors appeared to have been entirely male. They were individually instructed in the art of dreaming. Any old man could be a doctor, since an inner call was not necessary. Gusinde²⁹ believes that the stress laid on the youths' initiation among the Alakaluf pushed the men's initiation and shamanism to the background in the culture.

Mythology and sundry beliefs.—The high god concept was most developed among the Alakaluf. This Supreme Being was called X'ol'as (star). The stars were his eyes at night (and the sun in the daytime?). The human souls came from X'ol'as, and returned to X'ol'as. This god created the earth and mankind. Two brothers, Yalok and Eksis, were the culture heroes, and the human race descended from them. The moon was thought to be the wife of the sun, as among the Ona.

TRIBAL INITIATION

In my previous paper³⁰ I have shown how the traits of tribal initiation for boys and individual initiation for girls can be traced from the Northwest coast through to the Jimsonweed cult of southern California. Since then Kaj Birket-Smith has published a most interesting article giving the distribution of the drinking tube in North and South America. It appears that, unlike the scratching stick, the drinking tube is associated with puberty rites solely in the New World. Smith writes as follows:

Whereas among the Eskimos it [the drinking tube] is an ordinary article of use, it assumes a ritual character as soon as we leave this people. On the North Pacific coast and the northwestern plateaus it is employed in the puberty rites of the girls, during which their lips must not come into direct contact with water. In this manner it is used by the following tribes: Tlingit, Tsimshian, Kwakiutl, Tahltan, Carrier, Babine, Chilkotin, Thompson River Indians, Lillooet, and Shuswap. It is also part of these puberty ceremonies that the girl must not see the sun, for which reason they sometimes wear an eyeshade: nor are they allowed to scratch their heads with the fingers, but have to use a head scratcher. It is a characteristic fact that both eyeshades and scratching sticks are ordinary implements of use among the Eskimos.³¹

The distribution of the drinking tube is such that one may hazard the guess that its original use everywhere in North and South America was in

²⁹ II, 11.

³⁰ Loeb, III.

³¹ Pp. 31, 32. A map showing the distribution of the sucking tube in North America is given on page 33.

connection with girls' puberty rites. Outside of the Northwest area, however, the drinking tube in connection with girls' initiation rites has been described for only two peoples, the Navaho and the Yahgan.

Outside of California, the scratching stick was commonly associated with girls' puberty ceremonies in North America. This was also the case in the schools of Tierra del Fuego, and perhaps was the case for the girls' individual puberty ceremonies among these peoples. Among the Makuschi on the Rio Branco, British Guiana, a girl at the time of her first menstruation made use of a scratching stick. Both parents were under the same restriction after the birth of a child, and among the neighboring Taulipáng the survivors of a dead person used a similar utensil.³²

A distinguishing feature of the girls' puberty rites in the northern section of California was the use of a deerhoof rattle.³³ Nordenskiöld has already pointed out that a similar utensil was used at the girls' puberty ritual in the Gran Chaco and also perhaps among the Araucanians.³⁴

Beginning at the strait of Magellan, I have been able to obtain information on the following initiations, tribal and individual. Gusinde³⁵ while stopping at a Tehuelche camp on the eastern side of the Andes and on the heights of the Rio Gallegos discovered a men's tribal initiation called, as among the Ona, Kloketen. This was held in a typical Patagonian tent, covered with sewn guanaco hides. In place of bark masks feather decorations were used, especially rhea (ostrich) feathers. These served as masks, for they hid the faces of the wearers. It appears probable that these same Tehuelche had an individual ceremony for girls. Outes, in writing about the Patagonians in general, said that when girls arrived at the period of their first menstruation they were subjected to a special ceremony which was deemed essential for the health of all the clan members, and which consisted in a series of ablutions and exorcisms. Only the immediate elders and the shaman of the family group supervised the ceremony.³⁶

Among the Araucanians of Chile there were no masked dances. No initiation rites existed for either boys or girls. There were formerly three classes of doctors among these people: the huecuvuye (sorcerer), the dunguve (diviner), and the machi (witch doctor or exorcist). The sorcerers acted as priests, taking charge of ceremonies and sacrifices. They wore women's clothing. They were not inspired by the huecuvus, or spirits, but were in

³² Koch-Grünberg, 129, 130.

³³ Kroeber, II, chart, 864.

³⁴ I, 314. The Lengua of the Gran Chaco had this trait (Grubb, 178).

³⁵ I, 373.

³⁶ Outes, 261.

communication with them. To enter the caste of huecuvuye a long apprenticeship was necessary, terminating in a mysterious initiation ceremony (undescribed). The diviners were true seers, in communication with spirits. They were always male. At the present day only the machi have survived. They are medicine-men, seers, and exorcists. The profession is common to both sexes, the learner graduating after a long apprenticeship to some well established machi. Among their medical utensils are clysters of bladder and bone tube. Their chief instruments are skin drums. Pederasty is common among the members of this profession.³⁷

It was probably not by way of Chile, but via the Gran Chaco that masks became one of the features of tribal initiation. Grubb noted that among the Lengua Indians the Kyaiya dance was exactly similar to a Yahgan dance. At the time of a girl's first menstruation among the Lengua, the boys dressed in rhea plumes, and wore masks to represent evil spirits. They ran in and out among the crowd until driven away, jingling bunches of deer hoofs. The puberty ceremony for boys existed, but was not described by the author.³⁸ Both the early Catholic missionary Dobritzhofer and Grubb noted evidences of early contact between the Peruvians and the peoples of the Gran Chaco. These similarities consisted in pottery and weaving designs, the extension of the ears, and the veneration of the moon and the Pleiades.³⁹

Among the Ashluslay of Paraguay a girl's first menstruation was celebrated with a dance. Men and women danced around the girl, who had her face covered. The dancers wore no masks, but carried deerhoof rattles in their hands.⁴⁰ During her first menstruation, among the Chané of Bolivia, the girl was shut up in a compartment of her house. Her hair was cut, and she was not allowed to go outside until it was half-grown. She was held to a diet between the first and second menstruation.⁴¹ The Yuracara of Bolivia treated the young woman with brutality. She was shut up in her cabin for four days. Then her hair was cut off, and her arms and legs were riddled with a sharp bone. For five or six months afterwards the girl had to keep her head covered with bark, and refrain from speaking to men.⁴²

Initiation of both sexes seems to have been the rule among the Tupi and Carib. The general purpose was first to subject the candidate to severe or-

³⁷ Latham, 351, 352.

³⁸ Grubb, 178.

³⁹ Dobritzhofer, 28, 94; Grubb, 50.

⁴⁰ Nordenskiöld, III, 74.

⁴¹ Nordenskiöld, III, 210.

⁴² Karsten, II, 163.

deals in order to test his or her fitness for marriage, and secondly to give the candidate a tribal mark. Thus among a Tupi tribe of Brazil, the Guarayus, "the girl was scarified on the breast with an agouti tooth and tattooed. The operation was performed by the sorcerer, and the marks were regarded as outward signs that the girl was marriageable."⁴³ "The Carib, on the same occasion, cut off the hair of the girl with a sharp fish bone; thereupon she was placed on a flat stone and her flesh was scarified with sharp agoriti teeth from the top of the shoulders down to the back. . . . Ashes were moreover put into the wounds, so that the scars never disappeared."⁴⁴

Roth, in describing the puberty ceremonies of the Carib and Arawak of British Guiana, says:

In many of the tribes . . . the young people of both sexes cannot enter into permanent sexual partnership until they have successfully undergone the puberty ordeals; in others, the betrothal or perhaps even the consummation of the marriage follows as a direct consequence of such ordeals. Marriage customs and puberty rites are more or less identical.

The puberty ordeals include (a) more or less rigid fasting, combined with (b) exposure to the bites of ants, etc., (c) severe scarification, or (d) sound flogging—all to be borne without visible signs of suffering.⁴⁵

The intermingling of the two ideas of giving a tribal mark and inflicting an ordeal is well illustrated among the Carib of the Pomeroon, observed by Schomburgk. After the girl had been scarified from shoulder to shoulder, and had deep gashes cut down her back, red pepper was rubbed into the wounds.⁴⁶

In spite, however, of the emphasis which the Carib and Arawak placed upon puberty ordeals, the girl at this period was also treated as "unclean" as among most American Indians. Roth writes:

What may be regarded as remaining puberty ordeals to which the young girl has to submit at her first menstruation, and to a minor degree at all her subsequent ones, are certain procedures connected with her isolation, with water, fire, cooking, and cooking apparatus, and with the hair. In the "old days" of the Pomeroon Arawaks, the girl would remain with her mother in a separate lodge, or in a specially constructed compartment of the house.⁴⁷

Koch-Grünberg in describing the initiation ordeals of the Carib and Arawak between the Rio Branco and the southern branch of the Orinoco

⁴³ Karsten, *loc. cit.*

⁴⁴ Karsten, *loc. cit.*

⁴⁵ Roth, 308.

⁴⁶ Schomburgk, 431.

⁴⁷ Roth, 311.

gives very much the same material as that found by Im Thurm and Roth for the coastal peoples. According to Koch-Grünberg, while girls were always initiated individually, several boys were always submitted to the puberty ordeals together.⁴⁸ The Island Carib also are reported to have practiced severities (probably whipping and scarification) on boys as a puberty ceremony.⁴⁹

Among the tribes of northeast Peru investigated by Tessmann, the girls were usually secluded at puberty, but neither boys nor girls were subjected to ordeals.⁵⁰ Among the Uitoto, however, both sexes had their bodies painted at this time,⁵¹ while the Jivaro had an initiation feast for boys called kusúpani, in which the youths were induced to obtain visions by drinking the drug maikava. Until the boys had gone through this ceremony they were not allowed to marry.⁵²

Puberty ceremonies survived for both boys and girls among the Incas of Peru. There was a ceremony for boys of the noble class called Huarachicu. These youths were admitted into a sort of chivalrous order by fasting, being flogged, and submitting to other tests of their self control. The candidates also received moral training, and finally each had his ears pierced by an Inca as a mark of distinction.⁵³ Girls, when they were of age, had to undergo a ceremony called Quicuchica. They fasted for three days, and on the fourth they were washed and given a new dress. The relatives then came with gifts, and the young woman received the name which she was to bear for the remainder of her life.⁵⁴

The ancient Maya of Yucatan had a puberty ceremony for boys and girls, who, however, were initiated or baptized separately. This ceremony was called "zihil" which means "rebirth," and took place when the children were about twelve years of age. The neophytes were confessed and sprinkled with water by the priest. A special star ornament worn on the forehead of boys was cut by the priest, and the mothers removed from the girls the shell which each had worn from childhood in front of her sexual organs. The boys were now regarded as men, and the girls were open to betrothal. A general feast followed.⁵⁵

⁴⁸ P. 127.

⁴⁹ Byan, 1: 38.

⁵⁰ Tessmann, kartogramm 32.

⁵¹ Lecture notes of E. Nordenskiöld.

⁵² Karsten, I, 51.

⁵³ Joyce, 112-114.

⁵⁴ Markham, 135, 136.

⁵⁵ Thompson, II, 72, Gann and Thompson, 139; Joyce, 270.

A curious survival of the death and resurrection ceremony is to be found in the Quiche epic of the Twin Brothers.⁵⁶ This is the more noteworthy, since, in spite of the importance attached to the moon in practically the whole of South American mythology, I have not been able to find a single example of a death and resurrection ceremony between California and Tierra del Fuego.

Among the Aztec puberty ceremonies were probably almost entirely lacking. A vestige may be observed in the custom of granting insignia to boys for the capture of prisoners in war. After a boy had captured his first enemy he was allowed to remove the lock of hair which he wore at the back of his neck as a sign of his novitiate.⁵⁷ Both the bullroarer⁵⁸ and the drinking tube, however, were known to the Aztec, the latter as a religious utensil.⁵⁹ The Huastec had noted magical priests who performed legerdemain. One of their tricks was "the dismemberment and resurrection of the conjurer himself."⁶⁰

Tribal initiations for boys and puberty ceremonies for girls were again prominent in Lower California among the Cochimi.⁶¹ In southern California the Jimsonweed cult altered the form of these ceremonies to a certain extent,⁶² but in the primitive culture of the Kuksu cult area we again find initiations similar to Tierra del Fuego.

MASKED DANCES, OR SECRET SOCIETIES

NORTH AMERICA

In my paper on Tribal Initiations and Secret Societies, I still believed tribal initiations to be a widespread trait throughout the world which had been diffused from one center and that secret societies had probably arisen from foci of independent origin, developing, however, out of tribal initiation.⁶³ Recent field work in North and South America has led me to alter

⁵⁶ The twins showed their magical powers by killing themselves. Their bones were ground down and thrown into the water. They reappeared as fishes and subsequently as old men. In this disguise they killed and resurrected each other, arousing the curiosity of the Xibalbans, who also wished to experience the sensations of death and resurrection. The twins consented and killed the two leaders of Xibalba, refusing afterwards to restore them to life (Das Popul Wuh, 60).

⁵⁷ Joyce, 123.

⁵⁸ Thompson, I, 102.

⁵⁹ Birket-Smith, 35.

⁶⁰ Joyce, 97.

⁶¹ See Appendix.

⁶² For the Jimsonweed cult for the Luiseno and Diegueño cf. Loeb, III, 270.

⁶³ P. 286.

this interpretation and I now believe that there was but *one* archaic focus of origin for secret societies in the New World and that this focus was either at or near what later became the centers of higher civilizations in the New World.⁶⁴

In describing the nature of masked dances among the peoples of higher cultures in the New World, and the evidences of their diffusion north and south, I am mentioning other features of religious culture which appear to have traveled with these dances as a religious complex. These features include: the belief in a high god, a creation story of emergence from under the earth, or the story of periodic destructions and re-creations, the Quetzalcoatl culture hero myth, sun and moon worship, and fire walking.⁶⁵ Certain features extended from the Maya north, but not south. These included color symbolism in connection with directions, the pole climb, the rattle-snake dance, the feathered serpent, and the new fire ceremony.⁶⁶

In presenting these few distributions I am fully aware that I am adding but little to the elaborate proofs concerning the processes of culture growth in the New World as already furnished by many better equipped Americanists.⁶⁷

While the Maya religion is the source (via the Toltec) of Aztec practices, but little is known from this older region. Thompson found masked dances (including the deer dance) among the present-day Maya of British Honduras. He stated that the dances were ancient, and that the wooden masks used bore striking resemblance to the masked deities of the ancient empire.⁶⁸

Quetzalcoatl was called Kukulcan by the Maya. This name had the same significance as among the Aztec, that of "feathered serpent." Gann believes, however, that the feathered serpent was probably the guise under which the planet Venus was worshiped, at least in early times.⁶⁹ The Maya had vestal virgins, who lived in a convent under a mother superior, and who guarded the sacred fire.⁷⁰ There was an elaborate new fire ceremony on New Year's, which included stilt walking and the fire dance. The priests wore

⁶⁴ The question of the original focus for the societies of the Northwest coast I must leave aside in the present paper. I hope to deal with this subject in the future, however.

⁶⁵ I have already dealt with this trait on p. 530 (fn. 25).

⁶⁶ The new fire ceremony was also found in Peru.

⁶⁷ Including H. J. Spinden, A. L. Kroeber, and P. Radin.

⁶⁸ Thompson, I, 102.

⁶⁹ Gann and Thompson, 136.

⁷⁰ Gann and Thompson, 131.

masks on this occasion.⁷¹ Like the Aztec, the Maya and cognate tribes believed that more than one creation had taken place, and there was a tradition of a great deluge, in which those who did not perish turned to monkeys. The creating gods made the earth by the power of the word.⁷² The four world directions were associated with the colors yellow, red, white, and black.⁷³ The moon was considered feminine, and, according to legend, was the wife of the sun.⁷⁴

Only a few points in the Aztec religion can be mentioned in brief. Tezcatlipoca was an all-powerful god of the Nahuatl-speaking tribes. A smoking mirror was his special sign, and in it he was supposed to see all that was occurring on earth, for one of his main functions was the distribution of rewards and punishments.⁷⁵ The Aztec also believed in a supreme, but otiose deity, called Teotl.⁷⁶ The sun and the moon were deified under the names of Tonathiu and Meztli, respectively.⁷⁷ Besides the elaborate use of masks in connection with the services of the gods, Acosta has mentioned an actual drama, performed in Cholula. This was presented on a stage erected on the lower step of a temple. It was given in honor of the god Quetzalcoatl. When the plebeians danced they muffled themselves in disguises, of papyrus, of skins, and of feathers, representing animals. The actors also presented scenes of buffoonery.⁷⁸ The new fire ceremony took place once in fifty-two years only. It was believed that the old sun died, and a new luminary took its place.⁷⁹ At a special festival called Atamalqualiztli, which took place every eight years, the dancers performed in animal disguises, and certain of the men picked up frogs and snakes from a tank of water, and danced with them in their teeth.⁸⁰

On the tenth month of the Aztec calendar a festival was held in honor of Xiuhtecutli, in which victims were half roasted in a fire before being sacrificed. A feature of the proceedings was the erection of a lofty pole, surmounted by a figure of the god made of flour-paste, and the final ceremony

⁷¹ Gann and Thompson, 144; Joyce, 265. The use of stilts in North and South America has been fully described by Lindblom (work cited in Bibliography). So far as known, stilts were used only in masked dances of the New World among the ancient Maya.

⁷² Popul Wuh, 4.

⁷³ Gann and Thompson, 120.

⁷⁴ Gann and Thompson, 127.

⁷⁵ Joyce, 42.

⁷⁶ Biart, 109.

⁷⁷ Biart, 117.

⁷⁸ Biart, 306.

⁷⁹ Spence, 303.

⁸⁰ Joyce, 73.

consisted in a contest on the part of the young men to swarm up the pole and reach the figure, the victor being entitled to certain rewards and insignia.⁸¹

In the Aztec cosmology, Mictlan, the underworld, consisted of nine spheres. Above were thirteen heavens. In the eighth of these were the gods Teotl or Tonacatecutli and his spouse lived in the highest, or thirteenth heaven.⁸² While the migration story of the Aztec derived their original home from seven caves, the creation stories assign four catclysms and re-creations. Each age was thought to have been under a different sun. According to the Codex Vaticanus there first came a flood, and the semi-humans of the time were changed to fish. Next came violent winds, and man was changed to apes. Then a universal fire, and finally famine. According to the Calendar Stone, the catclysms were: jaguars, hurricane, fire, and flood.⁸³

But little is left of ancient cults among the present-day Indians of Mexico. The Yaqui and Mayo of Sonora, however, have preserved the custom of giving masked dances at the chief Christian festivals. The dances are held in the open and women look on, but take no part in the performance. The headdresses represent various animals, including the antelope or deer, the fox, coyote, and rabbit. Certain of the performers act as clowns.⁸⁴ Sun and moon worship was recorded for the natives of northern Sonora.⁸⁵ Among the Opata, both the sun and moon were considered divinities, and there was a dance for the new moon.⁸⁶ The sun and moon were the chief divinities of the Tarahumare, the sun being the protector of the males and the moon of the females. A dance called Yumari was held in honor of the moon, and the sun was appealed to for good crops.⁸⁷ The Seri still practice a puberty ceremony for girls, and each night for four nights men and women dance around the young woman. The Seri also have a Quetzalcoatl myth, which was told as follows:

Antiso'ma (=Montezuma?) is the size of a child, has a beard, a golden staff, white clothes inside and black outside. He lives in a cave. Once he tried to take a

⁸¹ Sahagun, bk. 11, ch. 29 (Quoted in abstract in Joyce, 69, and Spence, 273.)

⁸² Joyce, 55.

⁸³ Spence, 38 ff. The Yuma creation story serves as a geographical mid-point between the Eastern Pomo and the Aztec. There was first a flood, then a world fire. The people were saved by being covered with snow (in tropical Yuma?). (See Harrington, 328-336.)

⁸⁴ Bogan, 19, 22, 30, 46.

⁸⁵ I am indebted to Dr. Ralph Beals for my source information on Sonora.

⁸⁶ Documentos, 3: 628.

⁸⁷ Basauri, 44, 47, 48, 68.

young man away with him in order to dress him nicely. Later the young man's relatives went with him to find Antiso'ma again, but could not.⁸⁸

Kroeber believes that Montezuma legends of similar nature are widespread in northern Mexico, and he states that they are common to the Pueblo.⁸⁹ In Lower California the early Jesuit missionaries recorded masked dances, including what I have taken to be an impersonation of the culture hero Quetzalcoatl.⁹⁰

I have already presented a summary of the masked dances and tribal initiations of the Pueblo.⁹¹ Certain of the traits mentioned in the present paper are of course to be found in this region. Ehrenreich has shown that the emergence myth is strongly developed among all the Pueblo tribes. In place of the Quetzalcoatl story, the twin heroes are prominent.⁹² The new fire rites at Walpi were witnessed by Fewkes, who wrote:

In a general way it may be said that the Walpi New-fire rites are to be regarded as fire worship, but more specifically as sun and germination worship, all of which are intimately connected.

The same or similar rites are enacted at Zuñi, Jemez, and among the Rio Grande Pueblo.⁹³

The Natchez have ever been famous as an example of Mexican influence. According to Charlevoix, the greater part of the nations of Louisiana had formerly their temples, as well as the Natchez, and in all these temples there was a perpetual fire. The high god belief among the Natchez was peculiarly elevated, for He created all things including intermediate spirits. The Natchez culture hero and his wife were sun gods who came to teach man. They were not impersonated in any cult, however.⁹⁴

The new fire ceremony went east to the Creek, and Yuchi,⁹⁵ while color

⁸⁸ Kroeber, V, 14, 15.

⁸⁹ Personal information.

⁹⁰ See Appendix.

⁹¹ Loeb, III.

⁹² Ehrenreich, 32, 44 ff.

⁹³ Fewkes, 80-138.

⁹⁴ Swanton, II, 166-169. It is peculiar that although Quetzalcoatl was not a solar or lunar divinity in the regions of higher cultures, the culture hero on the periphery of these regions appears to be either connected with or descended from the sun or the moon. This may be considered a secondary association. Thus Kuksu of California is often a lunar figure. It may also be observed that whereas Quetzalcoatl had no wife, in regions such as central California and among the Natchez where the human race is thought to have descended from the hero a wife is furnished by the myth makers.

⁹⁵ Swanton, I, 551.

symbolism in connection with directions extended east to the Yuchi,⁹⁶ north to the southern Sioux, and in California to the Diegueño.⁹⁷

In southern California there were no masked dances, and the culture hero "dying god" Wiyot was not impersonated. There seems to be no question but that Wiyot and the moon were identified among the Luiseño and the Diegueño. Du Bois has already pointed this out for the Luiseño, for at the moon ceremony among these people "they sang Wy-ot, Wy-ot. The dances were to please the moon and prevent his waning."⁹⁸ At the "Sick Moon" ceremony of the Diegueño the people bathed and had foot races "to please the moon and make him glad." The belief was that "if they sang and made a noise and laughed down here on earth, the moon would grow cheerful and get well and large again."⁹⁹

Unfortunately but little as yet has been published on the Chumash religion. According to Mason, the early writers claimed that the Chumash as well as the Costanoan and Esselen were sun worshipers.¹⁰⁰ Among the Salinan Kuksui and his wife were said to have been impersonated. The Costanoans had a dance and seed offerings to the sun at the winter solstice, but it is not certain that this was part of the Kuksu cult.¹⁰¹

Among the tribes having the Western Kuksu cult there was no new fire ceremony for the purpose of rejuvenating the sun. Instead among the Kato fire was thrown at the new moon.¹⁰² Certain of the Pomo branches also had new moon ceremonials, as well as the Huchnom. Big Head was identified with the moon among the Kato, Huchnom, Yuki, and Wailaki.

In 1926 I wrote:

The more obvious Pueblo traits to be found among the Pomo are: the sacrifices of meal, the use of the "pole-climb," and the rattlesnake ceremony.¹⁰³

In my field work of 1930 I found that the Lake Miwok had a rattlesnake dance and that they used a pole with an image on top in their mourning ceremony. Thus the distribution of the pole ceremony includes Taos, the Luiseño, the Central Sierra Miwok, the Lake Miwok, and the Eastern Pomo. The snake dance was enacted by the Hopi, the Yokuts, the Lake Miwok,

⁹⁶ Speck, 105.

⁹⁷ Waterman, 332 ff.

⁹⁸ Du Bois, II, 185.

⁹⁹ Waterman, 328.

¹⁰⁰ Mason, 182.

¹⁰¹ Kroeber, II, 471.

¹⁰² Among the Kato individual families made "new fires" in case of epidemic in the village. This of course had nothing to do with a sun or moon cult.

¹⁰³ Loeb, I, 399.

and the Eastern Pomo. The feathered serpent (Bagil) was much feared by the Pomo women. Likewise among the Kato the women were taught to fear Cusnes, a giant snake equipped with horns and feathers.

Now this paper has demonstrated the fact that while a new fire ceremony, meal sacrifice, the pole climb, the rattlesnake ceremony, and the feathered serpent are traits held in common by the Pueblo and central California, the original source of both cultures must be sought in the Maya-Aztec region.

Finally, I wish to correct my statement of 1926, that

the Kuksu religion and the Creator concept are peculiar to North Central California culture ¹⁰⁴

Both of these are common to central California and Lower California, with their ultimate source in the Maya-Aztec region.¹⁰⁵ I no longer believe that the original conception of Coyote split into Marumda (the high god)+Coyote, but rather that Coyote was the original trickster creator, and that Marumda was brought into the region as part of the Kuksu religion.¹⁰⁶ It can hardly be denied that the Eastern Pomo creation story is Aztec. Why then should the creation story be foreign, and the creator indigenous?

SOUTH AMERICA

The Chibcha are said to have entered Colombia from the north. Their religion included temples, a school of priests, human sacrifices to the sun, sun and moon worship, a high god who was the creator, and the coming of a culture hero. Joyce writes:

The next feature of Chibcha mythological history is one common to all the cultured peoples of Central and South America, namely, the arrival of a white culture-hero who gave the people laws and instructed them in arts and industries. Such is the Quetzalcoatl of the Nahua, the Uiracocha of the Peruvians, and the Tsuma of Venezuela.

This culture hero was known to the Chibcha as Bochica, Nemterequeteba, and Xue. His worship was universal in Chibcha territory and many temples were raised to him.¹⁰⁷ According to Restrepo, the Supreme Being among the Chibcha was called Chiminigagua. He had no idols and no cult. The people

¹⁰⁴ Pomo Folkways, 399.

¹⁰⁵ Kroeber has pointed out that Lower California was not the direct path of diffusion from the Aztec, but that the culture there probably was a survival of an archaic Southwestern form (see bibliographic reference VI).

¹⁰⁶ Pomo Folkways, 300

¹⁰⁷ Joyce, 12.

worshiped the orbs he created; the sun, and the moon, the wife and companion of the sun.¹⁰⁸

In Ecuador religious beliefs and practices were similar to those of Colombia. The sun and the moon were both worshiped in the highlands as the official cult, and the moon alone was worshiped on the coast, as among the Cañari. Joyce believes that sun worship was introduced on the coast by the Inca.¹⁰⁹

Many, if not most, of the Peruvian tribes worshiped supreme creator gods, and these figures became identified when the cults came into contact. Uiracocha was the name of the god worshiped by the rulers of the pre-Inca empire who came from the Callao, and this god held a superior position in the Inca Empire to the sun and moon (brother and sister, husband and wife), the objects of his creation. This god also was said to have held power over thunder and lightning. He carved man from clay or stone, and then let the various tribes emerge from caves. The creator and the culture hero concept were merged among the Peruvians, for, after the creation, Uiracocha traveled northward through the country in the guise of an elderly man with a long beard and performed various miracles with the aid of a magic staff, finally disappearing over the sea. The Peruvians also had the story of the brother culture heroes, for the Inca family was said to have been initiated by two children of the sun, in this case brother and sister, Manco Capac and Mama Oello. These first rulers instructed the people in all of their arts.¹¹⁰

The Inca had a new fire ceremony which lasted nine days and took place in June. The fire was kindled from a concave pyrites mirror, and torches obtained from the sacred flames were carried to the temples and convents. In the latter places the sacred fire was carefully guarded by virgins until the ensuing year.¹¹¹

It appears unquestionable that the ancient Peruvians had masked dances. These dances seem to have been preserved into an advanced culture from very ancient times. Joyce has summed up all the information to be had on the subject.

Where the huaca (natural object worshipped) was an animal, the descendants, especially on the coast, seem to have worn costumes representing the supernatural ancestor at stated festivals, and many of the vase-paintings appear to represent the dances which took place on such occasions. Here we have men clad in masks and

¹⁰⁸ Restrepo, 32-44.

¹⁰⁹ P. 66.

¹¹⁰ Markham, 59; Joyce, 150; Prescott, 31.

¹¹¹ Joyce, 43.

dresses to represent deer, foxes, scorpions, bats, owls, condors, falcons, pelicans, lobsters, crabs and fish. Some of these designs may have represented the huaca itself, combining its human and animal aspects, but Garcilasso states that, at the great festival of the Sun at Cuzco, the various deputations from the provinces appeared clad in the costumes of the animals from which they claimed descent.¹¹²

As in North America, the cult of the moon was diffused further than the cult of the sun. It may be that people, originally, at least, non-agricultural, felt little interest in the sun. Thus the Chimú of the northern coast valley of Peru worshiped the moon, called Si, as their principal god, because it ruled the elements and caused the tempests. The temple of the moon was called Si An. They held that the moon was more powerful than the sun, because the latter did not appear in the night, while the moon appears both day and night. Sacrifices were offered to the moon, and, on great occasions, children were sacrificed to this orb.¹¹³ Among the Araucanians the moon was considered the wife of the sun, but, while there was a definite moon cult, the sun received no honors.¹¹⁴ The Haush are considered by Lothrop to have been the first branch of Ona (or Patagonians) to have penetrated to Tierra del Fuego. Like the other people of Tierra del Fuego the Haush thought the sun and moon brother and sister. Moreover, they greatly feared the moon, and when it was ruddy they said that this was caused by the blood of those it had consumed.¹¹⁵

As I have suggested, it appears probable that the idea of a high god came to the Ona from Peru by way of the Araucanians. The name of the ancient god of the Araucanians was Pillán. This deity was not only the god of thunder, but he was also the purveyor of fire, causing the lightning, volcanic eruptions, and the earthquakes. He dwelt in the heart of volcanoes.¹¹⁶ Temaukl of the Ona was a sky god, but not a god of thunder and lightning. Unfortunately, the only description I have of the Patagonian religion is given by Fitz-Roy. As among the Araucanians, the dead were thought to go to the deities under the earth, and as among the Peruvians mankind first emerged from caves under the earth. Fitz-Roy stated that:

They think that the good deities have habitations in vast caverns under the earth, and that when an Indian dies his soul goes to live with the deity who presides over his particular family.

They believe that their good deities made the world, and that they first created

¹¹² Pp. 154, 155.

¹¹³ Markham, 216.

¹¹⁴ Latcham, 347; Bürger, 88.

¹¹⁵ Lothrop, 107. (See page 528 of this article.)

¹¹⁶ Latcham, 346; Bürger, 88.

the Indians in the subterranean caverns above mentioned; gave them the lance, the bow and arrows, and the balls to fight and hunt with, and then turned them out to shift for themselves.¹¹⁷

The Aymará Indians who live in Bolivia just south of Lake Titicaca furnish the link between the cults of Peru and those of the Gran Chaco and the Pampas. Bandelier was struck by the resemblance between the doctors' societies of the Aymará and those of the North American Pueblo, for in both regions there were societies for doctors, hunters, and warriors. The medicine-men directed all the dances, public and secret. Every clan, or ayllu, was represented at the festivals. In a dance called the "Sicuri" the performers wore enormous crowns of rhea feathers on their heads, which, as Nordenskiöld found out among the Churapa of central east Bolivia, represented the sun.¹¹⁸

It is probable that masked dances formerly were more widespread in the Gran Chaco than our written records would suppose. The Chiriguano and the Chané used masks during Christian festivals. Those seen by Nordenskiöld represented human faces and were burnt after the dance.¹¹⁹ The Lengua to the south performed masked dances, as already noted, solely at the time of girls' puberty rites. Rhea plumes were used in disguise,—a custom which remained among the southern Patagonians. It was only among the Ona that bark masks were substituted for the feathers, and the original solar significance of the dances became entirely lost.

The masked dances of the Amazon valley were in all probability men's tribal initiation rites rather than secret societies. That is, as far as there is any information on the subject, all the men of the tribe were lined up against the women and children. Lothrop¹²⁰ has pointed out the resemblance between the initiation and dance complex of the Amazon and Tierra del Fuego as follows:

- (1) The use of tall conical masks that conceal the identity of the wearer.
- (2) Ceremonial lodges from which women and children are rigorously excluded.
- (3) Belief that the authority and superiority of the men must be maintained, and the women and children impressed with their inferiority by these ceremonies.
- (4) Infliction of physical pain upon the novices.

¹¹⁷ 2: 161.

¹¹⁸ Bandelier, 272-280; Nordenskiöld, II, 24.

¹¹⁹ III, 24.

¹²⁰ P. 95.

According to Radin, the Camacoco at the very north end of the Gran Chaco have masked dances, or impersonation of ghosts, strongly resembling the Bororo. Among the Camacoco, however, the aim of the impersonations was still, as in Tierra del Fuego, the frightening of the women. The ghosts wore animal disguises, but, nevertheless, were regarded as ancestors. If a woman saw one of the spirits it was thought that she would die, and it was likewise thought that a similar fate would befall the entire tribe if the women found out that the spirits were merely men in masquerade.¹²¹ According to Karsten, the spirits impersonated everywhere in the masked dances of Brazil were thought of as ghosts of the dead.¹²² Here, at any rate, we are far removed from the god impersonating cults bordering on the higher cultures.¹²³

CONCLUSION

Evidence has been brought forth in the present paper to show that both Tierra del Fuego and central California have been exposed to acculturation from the regions of higher culture, and that the masked dances of both places resemble each other because of the similarity existing between the cultures of the Peruvians and the Aztec. In my previous paper on Tribal Initiations and Secret Societies¹²⁴ I attributed the peculiar medical aspect of the secret societies of the New World to shamanistic influence from Siberia. While I still believe this is true of the societies of the Northwest coast of North America, I believe that elsewhere the priesthood of the higher cultured peoples was responsible. Certainly associations of medicine-men flourished everywhere on the fringe of the priesthoods, in Lower California, Bolivia, and Chile. Fundamentally, secret societies in the New World were but a combination of tribal initiations and the masked pageantry of priests or sorcerers.

The question still remains open regarding the origin of the higher cults of the New World. Perhaps the priests here arose from sorcerers, and the elaborate ritual from the crude ceremonialism of nomads. It is also possible that outside influence affected American culture at an early date, and that truth lies behind the Quetzalcoatl myth. Until historical clarification can be placed upon the higher cultures, the relative antiquity of religious traits elsewhere in North and South America must remain open to question.

¹²¹ Fric, 116, 117.

¹²² Karsten, II, 221.

¹²³ I have dealt very briefly with the masked dances of Brazil in *Tribal Initiations and Secret Societies*, 281. Tessmann has mapped out (kartogramm 32) the exact distribution of masked dances in northeast Peru, but the details of the Yurupary cult of the region still remain unknown. I have not felt that a discussion of the men's masked dances of Brazil is essential to the present paper.

¹²⁴ III, 266.

APPENDIX

THE TRIBES OF LOWER CALIFORNIA

It is only recently that the importance of the religions of Lower California for an understanding of Mexican influence on California proper has been noted. Dr. A. L. Kroeber, while searching for references concerning the Seri Indians, found mention in the *Historia of Clavigero* of both a "God impersonating" and a ghost cult among the Cochimi. Kroeber introduced these references in full, in Spanish, in his manuscript on the Patwin. He further suggested that I continue the investigation. In now republishing what material I have found on the religion of these peoples, I take the liberty of including an English translation of the passages quoted by Kroeber. According to this preeminent authority on the California Indians, the tribes of Lower California have preserved a form of religion which at one time probably extended continuously through southern California to central California.

The peoples of Lower California were migratory hunters, using the bow and arrow, but devoid of agriculture. They had no domestic animals; even the dog was unknown to them before the arrival of the Jesuit missionaries.¹²⁵ Waitz mentions three chief languages for the region: the Pericù, Monqui (Waicura?), and Cochimi.¹²⁶ The Cochimi are the most northerly, extending to about two degrees south of the mouth of the Colorado, and are of Yuman stock. The affiliations of the southern languages are unknown.

According to Father Picolo the Cochimi (?) worshiped the moon. He writes:

They adore the Moon, and cut their hair (as I remember) in her Decrease, in Honour of their Deity; which they give to the priests, who employ it to several Superstitious uses.¹²⁷

Baegert states:

In time of mourning, both men and women cut off their hair almost entirely, which formerly was given to their physicians or conjurors, who made them into a kind of mantle or large wig, to be worn on solemn occasions.¹²⁸

Venegas states that children paid for their instruction by the doctors with a tribute of hair, and that adults paid in this same manner for their cures.¹²⁹

¹²⁵ A survey of the material culture of the Lower Californian Waicura from the account of Jacob Baegert is given in the Smithsonian Institution Report for 1863.

¹²⁶ P. 248.

¹²⁷ P. 240.

¹²⁸ *Op. cit.*, p. 387.

¹²⁹ P. 102.

In order to cure a sick man, it was also customary for one of the children to cut off the little finger of his right hand.¹³⁰

Baegert writes that there were certain ceremonies performed on boys and girls at the age of puberty. According to Venegas these ceremonies consisted, at least in part, in boring the ears and noses of the children and inserting earrings and nose plugs with pearl ornaments.¹³¹

Father Clavigero writes as follows concerning the religious beliefs and practices of the tribes of Lower California.

They have no temples, altars, idols, priests nor sacrifices. (?) They have, however, some idea of a Supreme Being, creator of the world.

The Pericuës say that a great lord by the name of Niparaja lived in the sky; that he himself made the sky, the earth, and the ocean, and that he was able to do ought else he desired. This lord, (who was also called) Añadian had a wife called Anajicojondi, and, without touching her body in any way, he nevertheless had three children by her. One of these, by the name of Cuajaip, was born in the mountains of Acaragui, and was indeed a mortal man (*fué verdadero hombre*). He spent the greater part of his life among our ancestors for the purpose of instructing them.

Cujaip was very powerful, and received many people under his rule, for whenever he wished he entered below the earth and from there he pulled up people. His subjects, however, proved ungrateful, and, forgetful of the many favors they had received from their lord, they conspired to put him to death. They did this by running him through the head with a round thorn.¹³²

Añadian lived in the sky, which was more thickly populated than the earth. At one time this god had a frightful war, for a mighty lord of that country, called by some Tuparân and by others Bac, conspired with all of his followers against the supreme Añadian (Niparaja). Añadian conquered in the war. After this he took from Tuparân the pitahayas and the other delicious fruits which the latter owned, and hurled him from the sky with all of his followers, imprisoning him in a cave next to the sea. . . .

They say, however, that Niparaja did not desire the war, but that Tuparân wished for it. For that reason those who have been killed by arrow wounds do not go to the sky, but to the cave of Tuparân. This dogma of the Pericuës was diametrically opposite to that of the Mexicans, who claimed that those who died in war went to the house of the sun.

From these doctrines two sects or opposing factions grew up in the country of

¹³⁰ Venegas, 103.

¹³¹ Baegert, *op. cit.*, 389; Venegas, 102.

¹³² This myth furnishes the geographical connecting link between the Mexican Quetzalcoatl accounts and the "Dying God" of southern California. It is interesting to note mankind emerges from the earth in the myth in Pueblo style. For the significance of Quetzalcoatl as Culture Hero see Ehrenreich, 40 ff. Kroeber summarizes the southern California "Dying God" concept in his Handbook, 790 ff.

the Pericuës. They differed both in their opinions and in their customs. The followers of Niparaja were on the whole grave, circumspect, and docile to reason. The followers of Tuparán, however, were cheats, liars, disturbers, and obstinate in their errors. They claimed that the stars, which according to their ideas were metal, had been made by a god called Purutahui, and the moon by another called Cucunumic.

The Cochimi said that a great lord lived in the sky, who was called, in their language, "he who lives." He, without having resource to any woman, had a son with two names, one of which signified speed and the other perfection. . . . Besides, they had another person called "he who makes people." They gave the title of lord to all three of these gods. When questioned, however, as to how many lords they had, they replied that they had but one, he who was the maker of the sky, the earth, the plants, the animals, and man and woman.

The Cochimi, who lived north of latitude 30°, made mention of a man who in ancient times came from the sky to benefit mankind, and for that reason they called him *Tamã ambei ucambi teciuchi*, that is, "the man who came from the sky." But they could not say in what way he had benefited man, nor did they give him any cult. It is true that they celebrated a feast called "the man who came from the sky"; but this feast, far from containing any element of religion, consisted simply in the enjoyment of the pleasures of eating and dancing. A few days before the feast the women were strictly enjoined to provide all those things which served the people as eatables. This was done for the purpose of regaling the god (*númen*) who was about to come and visit them. The provisions were stored in an arbour (*emparrado*) built for the purpose. When the day chosen for the feast arrived, they picked out a youth to impersonate the god, and secretly dressed him in skins, after having painted him in various colors so that he would not be recognized. The impersonator concealed himself in some mountain near the arbour in which the men awaited his coming. The women and children remained at a distance, not visiting either the arbour or the mountain. When the hour arrived for the disguised youth to allow himself to be seen, he appeared on the summit of the mountain, and from there descended running quickly to the arbour, in which he was received with great jubilation. There they (the men) joyfully ate at the cost of the poor women, who not knowing the secret, remained deceived by the imposture of their husbands.

After the false god had finished eating, he returned by the same path by which he had come.

The Cochimi celebrated the anniversary of their dead by a similar ruse and with a similar aim. They pretended that these lived in the northern countries, and came each year to pay them a visit. The men came together at the day of such a visit, and forced the women, even by threatening them with sickness, to gather in the bush and the camp a great quantity of provisions with which to regale the defunct. On the day selected for the anniversary the men gathered in an arbour and ate the provisions. The women and the children meanwhile kept away from the place and wept copiously over the death of their elders for whose repast they had so strenuously laboured. The men took such great caution that this mystery should be concealed

from the women, that a youth who had revealed it to his mother was immediately killed by his own father.¹³³

It is probable that "the man from the skies" of the Cochimi is one and the same as Cuajaip of the Pericuës, and that they both are Californian representations of Quetzalcoatl of Mexico. Further north Quetzalcoatl is figured in myth as the "Dying God" of southern California and in ritual and myth as "Big Head" of central California. As Kroeber has suggested, the ghost ceremony becomes the annual mourning ceremony of southern California, and regains its true form again in central California.¹³⁴ It is, in fact, a tribal initiation, and initiated boys must conceal its nature under penalty of death.

It appears that certain of the doctors among the tribes of Lower California took part in dramatic representations, and presumably took the part of gods, for they called themselves by the name of the gods. This much resembles Pueblo custom. On the other hand, Clavigero speaks of schools for medicine-men, thus reminding us of central Californian custom.

Venegas writes:

The sorcerers and jugglers . . . were possessed of some kind of superiority; but this lasted no longer than the time of their festivals, or during the time of sickness, or other incidents which excited their fear or superstition . . .

The sorcerers, to give the greater weight to their imposing, sometimes pretended that they were the very spirits in which they believed; at other times that they had been in heaven and conversed with the deities. . . . But their most usual device was to hold up in their hands some little tablets of wood made with great labor . . . on which were painted some grotesque figures, approved to be the true copy of the table, which the visiting spirit left with them at his departure to heaven: and these figures were the same which the Lorelto professors taught the boys at their private academy.¹³⁵

Clavigero writes in more detail concerning the doctors, but unfortunately he fails to describe the tablets (*tablitas*) in such a manner as fully to warrant our comparing them with the sand paintings of the Pueblo and of southern California.

The principal propagators of these doctrines were certain charlatans, who among the Pericuës were called, according to their sect, either by the name (of the god) Niparaja or Tuparân. Among the Guaicurus the sorcerers were called Dicuinocho and among the Cochimi they were called Guama, which we also call them.

¹³³ Clavigero, 28, 29.

¹³⁴ The Patwin and their Neighbors.

¹³⁵ Pp. 69, 100.

Those made doctors taught their dogmas to the children. The physicians applied their remedies to the sick. The diviners pretended that they derived their inspiration from the heavens and that they were confided in by the spirits. Some were honored by the title of priest, others made infamous by the title of sorcerer.

These guamas or charlatans picked from among the children those who seemed to them the most astute and suitable for this kind of office, and taking them to the most secluded places in the bush, they instructed them in their offices, and especially in making on certain tablets certain mysterious figures, which they pretended to be, as they said, those left by the spirit visitor when he departed.

These tablets were the books in which they pretended to read the nature of diseases, the remedies appropriate to the various sicknesses, the future changes of the weather, and even the destiny of man.¹³⁶

There follows here a description of the methods of curing. These were in brief: to allow the son to cut off a finger and let the blood drip on the father; or to blow tobacco smoke through a hollow tube on the sick place; or to suck out the disease through the same variety of tube.

The narrative resumes with a description of the priests and their festive costumes:

In the public festivals to which came all the tribes of a nation, the doctors appeared in ceremonial attire. These consisted of big cloaks (*capa*) which covered them from head to feet, and were made of hair which the doctors received from their pupils and from the sick, for whether the latter were cured or died, the doctor was always paid with the hair of the invalid. Besides the cloaks, the doctors wore on their heads crests made from the feathers of the sparrow hawk, and in their hands fans of the same material. The doctors among the Pericúes in place of crests wore crowns made from deer tails (*colas de ciervo*), and the Cochimi further wore two strings of deer hoofs from their belts.

Those (doctors) who took leading parts in the feast smoked tobacco from stone tubes called *chacuaco* by the Spanish of the country. Far from becoming dizzy by the smoke, the doctors commenced, in the manner of men inspired, discoursing concerning their dogmas with extravagant gestures, faces inflamed, and insolent voices.

Clavigero next describes the power of the medicine-men upon such occasions. They demanded food and inflicted punishments. If they told a man to jump off a cliff, he was certain to do it!¹³⁷

It is certain that the Cochimi who lived around 30° latitude had personal idols. These idols are described as being masked, and perhaps were a form of *katchina*, as described for the Pueblo Indians. Father Konscak writes as follows:

¹³⁶ Clavigero, 30.

¹³⁷ Clavigero, 30, 31.

They are wont to keep their idols in a house or bower apart from the town These miserable and unfortunate barbarians make their idols out of any kind of grass reinforced with sticks. In their faces, (I had better say) in the place of one they ought to have, you see a kind of cap that they make of black feathers woven into the knots of a hair net in the manner of a wig and it is among their most ingenious pieces of work. The ears of some of them are of wood; for shoulders they put a little board on each side, about six inches long, thin and painted. Moreover, we marveled at seeing the Holy Cross there. A plumage made of various feathers serves them as a crown. From the neck over the chest there hang many strings of small shells, of snails, little nuts and various colored feathers, that the greater part of their adornment consisted of, and that in their blind and barbarous opinion constitutes all the wealth. Some of them have a piece almost a half yard long and about a quarter or one third wide of a coarse texture of Agave and crudely variegated with earthen paints. Some skeins of hair knotted and braided above hang like a cloak or mantle of state from the madly false divinity. All this finery they are wont to keep in little baskets of rushes not woven but tied at certain distances in such a way that when they open them the whole stretches out like a mat. In some settlements every married man has his own adornment for his idol; in other settlements only some of the men have it, but the chief or captain always has it. When many villages unite in order to celebrate some feast, each one comes with the little basket of his idol. In front of each one they nail his wide or narrow, long or short board, according to the wood they had All this paraphernalia they turn over to the priest when they are baptized.¹³³

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¹³³ Pp. 106, 107. See bibliographic reference under Krmptic.

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UNIVERSITY OF CALIFORNIA,
BERKELEY, CALIFORNIA

MONTAGNAIS-NASKAPI BANDS
AND EARLY ESKIMO DISTRIBUTION
IN THE LABRADOR PENINSULA

By FRANK G. SPECK

OUR knowledge of stratification in Eskimo culture has led to the question of affinity between early Eskimo and northern Indian levels. There are many common properties in the civilization of the circumpolar peoples, whether of Eskimo, Athapaskan, or Algonkian speech classification, that point to an inland caribou hunting and fishing period from which have emerged the various specialized forms of civilization exhibited by the different groups inhabiting the intercontinental north throughout subarctic America and Asia. Many authorities agree more or less with the feeling that deep down in Eskimo history an inland economy was dominant and that the Eskimo west of Hudson bay have retained this culture phase more than the others. There has, however, been little reason to turn the same kind of thought to the region east of Hudson bay, and I am not sure yet that certain intimations in the writings of early missionary authors on the peoples of the region are sound cause for assuming very much in this direction of speculation until excavation in the Labrador peninsula shall have settled the point. But at any rate, certain statements which it seems impossible to ignore, as well as some indications of change in population through the retreat of the Eskimo and the advance of the Indians, have come to my attention while pursuing sources on Montagnais-Naskapi early history. These I have ventured to bring together and check up with recent findings in Labrador Indian ethnology to propose such a possibility as respects the region in question.

We are finding, indeed, many common properties between the Labrador Indians and Eskimo. What will they resolve themselves into later when we have traced out their precursors?

It is tempting enough to arrange the evidence we now possess and to entertain for a while the hypothesis of early inland as well as coastal Eskimo groups in the Labrador peninsula, no matter how the question finally decides itself. It might even turn out, as some other cases have, that the early accounts, when consulted by the ethnologist who has only contemporary modern culture data from a region to study, contain the clues to questions which we are seeking to answer by reconstructive interpretation. And here, as in many other areas, the ethnologist is waiting for the physical anthropologist and the archaeologist to tell him who his people really were and where

they lived before the migration period that we invariably have to take into account in the northeast.¹

The distribution and extent of the Montagnais-Naskapi in the Labrador peninsula in earlier times is a subject that calls most urgently for attention. The solution of the question, however, remains for the archaeologist. It will only be determined when an examination of campsites at various points in the interior of the peninsula and along the western, southern, and eastern coasts shall have been made, adding to what we know from samplings of sites by Lloyd, Jenness, Wintemberg, and Strong.²

For the present we may learn something instructive from the testimony contained in early writings concerning the natives. On the basis of statements recorded in the missionary accounts of the seventeenth century and maps of the period, we learn that people known to the French as Montagnais were located on the St. Lawrence between Quebec and Tadousac, and Bersimis to Moisie river, but how far into the interior they extended at the time was not said.³ (LeJeune 1632, and Sagard 1636.) Westward, up the St. Lawrence toward Three Rivers and Montreal the populations were designated as Algonquin, who were intermediate between the Montagnais and the Huron (Sagard).⁴ Montagnais are referred to as far eastward on the St. Lawrence coast as Seven islands by the Jesuits Menard (1660) and Crespien (1673-4), and in the interior on Manicouagan river by Nouvel (1664). The latter were Montagnais, as is shown by the appellation they bore among Jesuit writers, to wit, Papinachois, in which we recognize the native term pabi-na'cuwe, "one who wanders from place to place."⁵ In the northern dialects (Mistassini and Lake St. John) papi'nacu denotes dropping off one by one, as leaves are detached from the trees piece by piece by the wind in the autumn (papi'ú, in different directions, nacu, action of wind). The expression is figurative and refers to the advance of a body of people, from which parties detach themselves by dropping behind and remaining. It al-

¹ A. I. Hallowell has prepared the results of measurements on the Naskapi and discussed those of Boas on the Montagnais in *The Physical Characteristics of the Indians of Labrador*. He found no features among the Indians traceable to Eskimo admixture, the former being taller, with broader heads and wider and lower faces and more mesorhine than the Eskimo.

² See under respective names in Bibliography; for Strong, see reference II.

³ See page 561 for notices of distribution by Jesuit writers.

⁴ There seems to have been some lack of definition between customs recorded of the Algonquin and Montagnais of this period by the Jesuits, who evidently knew both groups well and who appear to have unintentionally confused their traits—which applies to LeJeune.

⁵ A translation equivalent to "Those who laugh a little," has also been offered in an early account by Father Laure (p. 63) making it a derivative of papi-wilnuts', laughing people. This, however, is refused by the informants. Compare also paminácwe, one who goes away by himself (Escoumains dialect).

ludes to the native idea of the migration that left the inhabitants of the country distributed in families and bands along the riverways and lakes. Aside from the literal meaning of the term, this is its interpretation as offered by native authorities of both the bands mentioned. One of the older men added in explanation that it implied that the people in an earlier period of their wandering had been scattered by the forces of nature, the food quest, storms, and the like. Varied spelling of the term is met with, all, however, recognizable through contemporary French pronunciation. One who knew these groups best, Father Pierre Laure, a Jesuit (1720-30), continually applied this name to the bands about Ilets-Jeremie and Manicouagan river.⁶

Several other group names have been applied to populations in the same general region from early times down to the present, the same being still known as descriptive appellations among the Montagnais. One of these is Betsiamits (Bersiamites, Bersimis), which may be rendered, "those who come out by the river from the interior,"⁷ and Oumamiou, "northeasterner."⁸ These names serve a purpose. They define for us the supposed eastern boundary of the Montagnais of the period (1694-1750).

The earliest occurrence of the name Naskapi under the form Cuneskapi comes from Father Laure (1731), who assigned this group to a place north of Lake Ashwanipi (at the head of Moisie river).⁹ This term has grown from an epithet meaning "uncivilized people" or those who have no religion, as applied to the hunters of the interior. I do not think it an advisable term to retain as a specific tribal designation, although its priority and general use for the northern and eastern bands of the peninsula need not be abandoned.

On a French map of 1693 (See f.n. 22, page 566) we find two Indian group names farther west above the Lake St. John country which can be recognized as corresponding to names and locations in other sources; namely Cacouchaqui, the Kagouchaes¹⁰ of the Jesuits, or "porcupine people" and

⁶ Besides the original, we have the essay of A. E. Jones, a Jesuit.

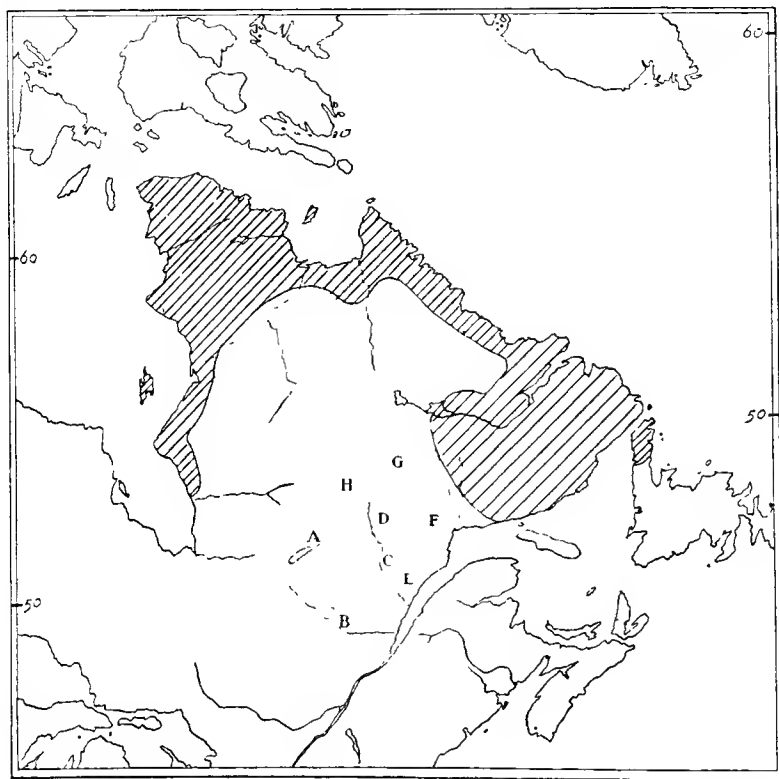
⁷ pétsiamits', they come out by way of the river, whence petsiámiwilnúts', people who come out by the river, the present name for the Montagnais of Bersimis.

⁸ Dictionnaire Français-Montagnais. The current meaning comes, however, from ma'mits, downstream (Lake St. John and Mistassini), from which comes ma miwilnuts', downstream people. This name is correctly applied to the bands near the St. Lawrence by those of the interior.

⁹ A map is mentioned by Hind (1:34) as being the work of Father Laure, dated Chicoutimi 1731, and now in the Canadian Library of Parliament. According to a note in Crouse (f.n. 2, p. 152) Laure's map, entitled "Carte du Domaine du Roy en Canada, 1731," is to be found copied in C. de Rochemonteix, *Les Jésuites de la Nouvelle France*, Paris, 1905.

¹⁰ Lake St. John Montagnais kag', porcupine, kákucu, porcupine tail.

the Oumouqui, which, through a little jugglery with orthography, can be coordinated with the Oumamiois of Albanel, since both names are placed in the same localities by both authorities. And for the identity of the present Mistassini people with the Mistassini of the Jesuit explorers we also have evidence.



Map 1. Approximate distribution of Eskimo (shaded area) in the Labrador peninsula and on the coasts in the seventeenth and eighteenth centuries, based upon early sources, and approximate recorded distribution of Montagnais-Naskapi groups as referred to at the same period. A-Mistassini; B-Piquagami or Kakouchaes (Cacouchaqui); C-Betsiamits (Bersiamites); D-Papinachois (Oupapinachouet); E-Oumamiwek (Oumouqui); F-Chisedec (Chiche-dek); G-Ouchestigouetch (Ouchestigouek); H-Nitchikirinouets (Nitchequon).

Several additional names applied to groups of Indians in the seventeenth and eighteenth century maps and in the Jesuit Relations still remain to be discussed later. They are Ouchestigouek, Chisedec, and Nitcikirinouek met with in varied but related forms. (See page 566.)

While the time is hardly ripe for final decision as to the dating of early territorial extensions of the Indians to the north and east of the peninsula, I have, nevertheless, attempted to indicate roughly on a chart some aspects of Montagnais-Naskapi movement and chronology for the region under consideration, as far as information from available documents permits us to go. (See map 1.)

SOME CONSIDERATIONS OF CHRONOLOGY IN THE CULTURES

Evidence of an eastward drift of Indian tribes, known as Montagnais, along the St. Lawrence coast of the peninsula occurs as early as the seventeenth century in the Relations of the Jesuits. This evidence has been accepted without question by most historical authors who have quoted the sources, as well as most of the explorers who have come into contact with the people themselves.¹¹ Since there is little reason to doubt its correctness, we may next seek for more knowledge respecting the time and extent of the movement, and of the forces behind it. The sources generally agree in ascribing one such force to the Iroquois. The migration supposition seems to possess the quality of truth in view of the convincing testimony that the Iroquois themselves expanded to the northeastward, and disturbed the residence of Algonkian-speaking groups over a wide area adjacent to them in the upper St. Lawrence region. The time is manifestly not yet ripe for the solution of these mooted questions, yet we may play with the idea in the hope that consequences may develop leading to a more positive decision.

At the time of the arrival of the French in lower Canada the Montagnais were apparently located *en masse* in the territory north of the St. Lawrence between Quebec and the Saguenay inland to Lake St. John, and eastward to Moisie river and Seven islands, and the waters inland to the Height of Land. At this time we do not hear much of any people residing north and east of them. With the subsequent expansion of French trading stations and mission influence, we hear of the Montagnais working eastward along the coast to Blanc Sablon. So much may be inferred as reasonable. Again turning inland and up the St. Lawrence from Montreal into the Ottawa valley the populations were designated in Jesuit documents as being branches of the Algonquin proper. A reconstruction of group locations for these enclaves in the seventeenth and eighteenth centuries would bring them closely enough together to be considered as adjacent groups in the middle St. Lawrence valley.

¹¹ L. M. Turner; H. Y. Hind; W. D. Strong, II. Yet it is quite difficult to believe that there had been none there before or during the period of Jesuit operations, since evidence is at hand, in the opinion of Jenness, to show that the Beothuk Indians may have reached Newfoundland by pushing across from the Labrador coast southward (see page 572).

Algonquin history corroborates such a conclusion since we know that the early frontier of this people stood considerably east of Montreal (possibly beyond Three Rivers) before the region had been cleared of its nomads by the ravages of the Iroquois and the founding of agricultural settlements by the French. Comparison of certain aspects of Algonquin and Montagnais ethnology for their part again corroborate the assumption, for we find in the contemporaneous economic life, social organization, and art of the two, though not in language, many common properties, some of which disappear when we leave their borders.¹²

I may venture to lay the boundaries of the Montagnais on their west and the Algonquin on their east as being quite different from the present eastward and westward dissemination of these groups. This would be valid from the time when they were first met by the French through to the end of the seventeenth century. Thenceforth the boundaries of both underwent change, broadening out in opposite directions. The Montagnais frontier is flung far to the east on the St. Lawrence coast and the Algonquin margin retreats westward toward the drainage area of the Ottawa river.

Turning to the question of Montagnais and Naskapi northward and eastward movements, with which alone we are concerned at present, a series of correlated events appear in the history of the same period in which the Iroquois and Eskimo figure prominently.

Iroquois.—Of the Iroquois, whose campaigns northward were at their height in the period between 1630¹³ and 1700, the Montagnais-Naskapi have vivid memories fostered by the tradition of fear. The Jesuit Relations (1665) contain reference to a battle between the Iroquois and Montagnais at Lake St. John, while in 1660 Lallemand speaks of the fear of the Iroquois felt

¹² The Algonquin and Montagnais, to cite a few instances, pursue identical hunting customs. Their implements in hunting, fishing, and transportation vary only within the limits of variation of their separate groups. Their industries coincide in the importance of birchbark as a material of use and the absence of weaving. In elements of costume and especially in form of birchbark vessels and their characteristic band-floral decorations they are similar. The family hunting territory with relatively equalized matrilineal and patrilineal tendencies, the seasonal hunting migrations and gatherings, characteristics of chieftaincy, similarity in patterns of shamanism and divination, and the correspondences of mythology and folk-lore link these groups sufficiently to warrant considerations of affinity. The demarcations, it seems to me at the present time, between the Ojibwa of Ontario and the Algonquin, are even greater than between the Algonquin and the Montagnais. (See also F. G. Speck, VI.)

¹³ As early as 1632 (Jesuit Relations 1632, also quoted by Hind, 1: 272) LeJeune saw the Montagnais cut up the heart of an Iroquois and give it to their children—proof of strife between them at that period.

among the Montagnais at Seven islands,¹⁴ and Turner in 1889 speaks of the Naskapi of Ungava as having a deep-rooted fear of the Iroquois.¹⁵

Most of the early writers, indeed, have assumed the northern and eastward spread of the Montagnais-Naskapi to have been urged by the depredations of these Romans of the New World, as they were named by Parkman. Albanel (1672) saw the remains of an Iroquois stockade whence they had spread devastation so wide that the inhabitants had abandoned the locality altogether. Dablon and Drouillettes (1661) were also in the region about Tadousac and northward about 100 leagues to Nekouba where they found that the Iroquois had completely exterminated the "Squirrel" tribe living there.

The Montagnais of the southwestern portion of the peninsula know something of the Iroquois through former intermittent conflict with wandering bands of raiders during the seventeenth and eighteenth centuries. There are some widely known localized legends recalling the usual events of intertribal friction, the scenes of surprises, skirmishes, and killings on both sides.¹⁶

It is not, however, until the St. Maurice is crossed going westward that such memories form the poignant fear complexes which are normally attributed by historical writers to these tribes. The Tête de Boule, for instance, exhibit a far keener reaction to tales of Iroquois conflict and barbarity than do the Montagnais.¹⁷ The latter appreciate this fully, accounting for their own greater immunity by their remote location and uninviting territory, while the Naskapi of the north and east, despite Turner's opinions,

¹⁴ In a recent report W. J. Wintenberg announced the discovery of an Iroquois campsite as far east as Kegashka on the southeastern coast of the Labrador peninsula, which establishes Iroquois occupancy on archaeological evidence several hundred miles east of the known range of Iroquois forays (Bull. 62:4).

¹⁵ P. 267; also A. P. Low, 451, and A. B. Skinner, 9: 10.

¹⁶ The widely distributed legends of conflict in the north between the native bands and Iroquois war parties abound in recent collections from the region both in published and unpublished material. The topic as yet remains untouched by students. My own collection (IV, 38: 12-31) includes war narratives from the Mistassini, Lake St. John, Tadousac Escoumains, and Ste. Marguerite bands.

¹⁷ Albanel (1672) at the upper end of Lake St. John met five canoes of Whitefish Indians, by which I feel assured he meant the Tête de Boule since the tribe has continually borne the name, who reported that English ships anchored in Hudson bay had spread disorder in those parts. Some such factor may have been connected with the southeastern migration of the group, a supposition which has been brought out by the studies of Drs. Davidson and Cooper on the ethnology of this tribe. D. S. Davidson has recorded legends of Iroquois depredations on this tribe (III).

I would say know the Iroquois only through the medium of their Montagnais associates.¹⁸

The eastward migration of Montagnais is a matter of convincing certainty from published records,¹⁹ showing that from Mingan eastward, and from perhaps still farther toward the mouth of the St. Lawrence, the so-called Montagnais were urging their hunting and trading down into the Gulf coast, keeping pace with the retreat or annihilation of the Eskimo, even actually pushing them onward. This move correlates with the reasonable supposition of the eastward and northward drift of the Naskapi, resulting in the peopling by Algonkian-speaking Indians of the interior plateau and the coast—a process by the present time nearly complete; but not quite so in view of the still uninhabited peninsula west of Ungava bay. (See map 2.) I have only hinted at the possibilities here, for we are as yet woefully ignorant of what will be disclosed by archaeological investigation.

Eskimo.—While we know succinctly the location of the major Labrador Eskimo bands within the past century to have been not essentially different from what they now are, it is evident from our sources that distribution prevailed on a different scale two centuries ago. The Labrador Eskimo were then inhabitants of a territory within the gulf of St. Lawrence and somewhere along the coast to the westward. This is attested by authorities of the

¹⁸ The universal Montagnais-Naskapi designation for the Iroquois is *Natowe'o* (singular), *Natowe'uts'* (plural), literally meaning, one who goes and gets something, carrying with it the idea of traveling in a boat, equivalent to "ravager." The epithet is traced over a vast area among Algonkian speaking peoples, from Virginia (Nottoway) to the Cree who denoted both Sioux and Eskimo by the same term (cf. Dobbs). The equally widespread appellations *Me'gwe* (Penobscot), *Ma'gwa* (St. Francis Abenaki), *Me'ngwe* (Delaware), and similar forms synonymous with Mohawk are denotative either of power or of eating human beings, and do not occur north of the St. Lawrence basin.

¹⁹ While earlier records are silent on the residence of Montagnais east of Seven islands on the coast and in the interior, we learn from Cartwright, writing of the period after 1775, that there were two families of Montagnais living near Sandwich bay on the Atlantic coast (p. 173); again that two men with their wives and children came there from White Bear river (p. 208), and that there were one hundred and sixty Montagnais living on Neville island (p. 160). He also mentions that four "Nascaupick" or Mountaineer Indians came to his establishment on Sandwich bay on October 4th, 1778, whose names were Pere Barecack, chief, Cowcosish, his wife, and daughter Ooquioo (16 years old), and again that forty Indians coming in eight canoes were to winter near him (pp. 25 and 252). At Hamilton inlet he says Indians were established in 1779 (p. 269). The names of these individuals are fortunately capable of translation in Montagnais-Naskapi. Barecack is evidently connected with *Kak'*, porcupine, and Cowcosish is clearly *Kák'wécic*, little porcupine. These are both known as personal names in the area among the contemporary natives. (Mistassini, *Kak'*, porcupine, the father-in-law of Charley Metowecic, the present second-chief.) Next Ooquiyoo is "neck" (Mistassini, Lake St. John, *úkuyo*).

time, even if their residence there was the result of attraction to the region after the end of the fifteenth century, as Gosling believed.

Birket-Smith assents to the southeastern distribution of Eskimo about 1600 inside the Gulf of St. Lawrence as far as the mouth of Moisie river and



Map 2. Approximate location, since about 1850, of local groups or bands of Montagnais-Naskapi and Eskimo. [Arranged from data obtained at various posts by F. G. Speck, 1910-1927. The distribution of the Davis Inlet band and eastern boundary of the White Whale River band is based on information offered by Dr. W. D. Strong, correspondence, March 1929.] The Eskimo-inhabited coast is marked with oblique lines, the coarse lining of the northwestern projection indicates territory uninhabited except for inland caribou-hunting parties of Eskimo.

for an earlier period (circa 1000) even to the Saguenay, by reproducing Steensby's conception of Vinland in the Gulf of St. Lawrence as inhabited by Eskimo groups before their retreat to the eastern and northern coasts after 1800. Nothing, however, is warranted in these observations to extend

the distribution of the people at the time observed further in the interior plateau of the peninsula.

On the east coast of James bay a corresponding shrinkage of Eskimo territory seems evident toward the north beyond Cape Jones (lat. $54^{\circ} 50' N$) which has, since the last century, remained the southern frontier of the Hudson Bay Eskimo.²⁰ The testimony of Dobbs (1744) stands for Eskimo residence northward from East Main (Slade or Slude) river ($52^{\circ} 30' N$) at his time of writing.²¹ Powell in preparing his linguistic map of North America denoted the southern extension of Eskimo territory on James bay on the strength of this testimony, which though not specific is not to be ignored.

That they may have even dwelt in part of the interior, as an inland type of Eskimo, next remains to be considered, as appears from the testimony of several cartographic sources, one dated 1660, the other 1695. The latter exists in a map of S. Sanson (1695) by H. Jaillot.²² The region of the interior, east of the headwaters of Ste. Marguerite river, is marked as occupied by Eskimo. On a still earlier map attributed to Creuxius (the Jesuit du Creux) (1660) *Tabula Novae Franciae* is marked in the same general location as the name *natio Esquimauxiorum*. A reproduction of this chart is given by N. M. Crouse.²³ This author also cites²⁴ a published copy of the Creuxius chart in *Historia Canadensis* (1660), adding evidence in support of a supposition that Creuxius had employed the sketch chart and information of his predecessor Father Druillettes to draw upon. The correspondences between the Creuxius chart and that of Sanson thirty-five years later by date would imply that the latter had utilized the cartographic scheme arranged by Creuxius. And on both charts adjacently westward of this territory are placed forms of the well-known names Ouchestigoue Chichedec, Kakouchaqui, Oumouqui, Betsiamites, and Oupapinachois, denoting divisions of the Montagnais-Naskapi. The latter are the most easterly names of Indian groups given for the period, which would designate the known and recorded frontier of the Indians at the time.

Still another proper name is provided by Jesuit documentary sources and

²⁰ Turner, 180, observes that in former years they extended entirely around the shore of Hudson bay, while then (1883) they resided as far south as longitude 53° on the east coast.

²¹ P. 49.

²² Collections of Library of Congress, Washington, D. C. chart titled *Amérique septentrionale divisée en ses principales parties, etc. par le Sr. Sanson, géographe ordinaire du roy, dédiée au roy*—par Hubert Jaillot, 1695. The map has appeared in J. Winsor (4: 375), as noted by Crouse (pp. 11-12) who quotes a review of Sanson's achievements as a geographer from R. de Vaugondy.

²³ Opp. p. 146.

²⁴ P. 28.

the Senex map, to wit, Chisedec (Chishedech, Chichedek, Jes. Rel. 1640-5), which has since disappeared from tribal and band nomenclature of the region and which, moreover, fails to evoke a meaning in the ears of native informants whom I have questioned. This group is given a location northward and eastward of the Papinachois, and by general consent is associated with the Indians who resided in the seventeenth century about Seven Islands bay, as Hind also points out. While the name may continue in the minds of some to remain detached from other references, I am inclined to believe that we have a clue to its identity in the term Ouchestigouek (with variants Ouchestigouetch, Oukesestigouek, Jes. Rel. 1664; 1643) which is indicated as a "village" north of Lake Nichikun on the Senex map, the other references by the Jesuits locating them where the Chisedec are designated as inhabiting the country north of Seven islands. The two names I would therefore suggest are correspondences and give us the most northeastern location of the Montagnais known to the Jesuits in the middle of the seventeenth century. As to the possible interpretation of the name, Gerard suggests "swift water people" from Cree ukisistigwek (BAE-B 30:174, pt. 2). I can offer no comment upon this explanation myself beyond observing that in Montagnais-Naskapi the form *ucə'ctəgwəts'* denotes "spitters" (Lemoine, Dict. Mont., Ushishtikuets, cracheurs) if this helps matters any as a possible or a logical appellation for a people.

The name Nitchikirinouets appears on maps of the eighteenth century (Laurie and Thwaites, 1794) in slightly variant forms, but not in documents of the preceding century. The people bearing the name are indicated in the area about Lake Nichikun, where a band of the same name has, until recently, had its residence (see page 591). The name itself has had a continuous existence, its modern form being interpreted by the members of the group as "otter hunting people." We shall, however, have to account for the designation of these people as a "tribe of Eskimo" on the Laurie and Whittle's map (1794), which might be dismissed as an error were it not for the suspicion from other sources that Eskimo may have entered the interior as far as this district, as will be discussed shortly. The name itself is clearly Montagnais-Naskapi, yet it also happens that the first two syllables denote "seal" in Eskimo.

In considering the names on the maps in question, to be sure, one has to take into account the lack of distinction between Indians and Eskimo in the designation of native groups, a fault of which Cartwright for instance was guilty by frequently inscribing the Eskimo as Indians. In the case of the Senex map, however, the distinction was specifically made between the names of groups known to be Indians through the evidence of name and

location, and those accompanied by the designation "tribe of Eskimo," even though they bear names in the Indian language.

Furthermore, on the map of John Senex (1710) is written "Little Eskimaux" across the stretch of country adjacent to the coast and inland south of Lake Nichikun between Hamilton inlet and St. John river on the gulf coast. The other Indian tribal names mentioned in the preceding paragraph are all there in the usual locations while two more appear of which we know also something, namely, Ouchestigoueks (Ouchestigouetc) and Nikikirinonek (Nichikun) north and northeast of Lake Nichikun. On the Laurie and Thwaites map (1794) is the designation "Little Eskimaux" repeated in the same general location as on the earlier Senex map, with the addition Netchikirinouets marked as a tribe of Eskimo, and the same (tribe of Eskimo) written after the name Nitcikirinuets (Nichikun) and also after the name Attikirinuets, which is clearly "caribou people" in Montagnais-Naskapi, as being located southeast of Lake Attikonipi on the chart in Laurie and Whittle's atlas (1794). Unless we ignore these hints of Eskimo mixed populations in the eastern interior of the peninsula we are at a loss to explain them away as indications of what they profess.

The meeting of another early writer on the region with occasional errant Eskimo in the interior of the peninsula indicates that in the seventeenth century their presence cannot be denied in the forests northeast of the Saguenay, now exclusively inhabited by Indians.

The priest, Francis de Crespieul (1671), is one who establishes this. On a trip up the Saguenay, begun November 6th, 1671, his party was joined by a family of Christian Eskimo. They told the priest that they had fled from the other Eskimo to escape being strangled for having become converts. It is not possible to locate with accuracy where this took place from the terms of the narrative, but by March the priest had reached the "Lake of the Cross," so named from its shape. On May 17th, 1672, the voyagers again reached Tadousac.

While it is perhaps of no great significance in our present query, it is true that Eskimo family founders have joined the Indian bands in the interior in historic times as is recorded of the Mistassini and the Indians about Seven islands.

We have no further evidence in the documents upon which to base the assumption of Eskimo presence on the tundra or in the forests of the southeastern interior.^{24a} Cartwright, however, who maintained an establishment

^{24a} On a map of 1748 by Th. S. Drage (1: 68-70) the Labrador mainland is shown and marked but unfortunately no inhabitants are designated.

on the southeastern coast refers continually to the residence of Eskimo there from 1770 onward, and published in his journal some facts concerning their history, residence, and habits in the region south of Hamilton inlet as far as Chateau bay.^{24b} It should be recalled, incidentally, that the Moravian missions had begun operations in trade and conversion of the Eskimo on the coast north of Hamilton inlet as early as 1771. Cartwright refers to these tribes or settlements of the people between Hamilton inlet and the straits of Belle Isle with a population of about 500, adding that between 30 and 40 of them seem to have belonged to the region adjacent to Sandwich bay.²⁵

The rapid disappearance of the southern Labrador Eskimo next follows. Conflicts with the Montagnais-Naskapi and with the English reduced them,²⁶ until none of them were to be found below the settlement of Moravian converts at Hopedale with the exception of a small band at Hamilton inlet.²⁷

The hostility between the races, begun in some older habitat perhaps in the Hudson Bay region,²⁸ was carried across the peninsula. The southern Montagnais-Naskapi bands had their contact with the now extirpated southern Labrador Eskimo from Hamilton inlet south to Belle Isle and west in the seventeenth century to Mingan.²⁹

^{24b} See Bibliography.

²⁵ Of this group, with whom he had intimate relations, he records that they did not kill whales but bartered for whalebone with the tribes further north, did not take much fur, nor understand deadfalls, but killed quantities of seals, fish and fowl.

²⁶ Tradition still lingers to inform us that the Montagnais used to attack the Eskimo in their "skin boats" and burn them by shooting arrows with torches attached to them. (Local tradition of Seven Islands bands.) Mooney (30: 913) quotes Beach, *Indian Miscellany*, 69, 1877, as saying that the last pure Eskimo in Belle Isle lived there in 1859 as the wife of an Englishman at Salmon Bay. Hawkes (91: 15, f.n.) discovered two survivors of the old southern Labrador Eskimo at Sandwich bay.

One of the factors held responsible for the cause of the expulsion of the Eskimo from the Belle Isle region was the establishment of the French town of Brest about 1630, with a territory along the coast four leagues east and west, under title given to a noble Courtemanche who had married a daughter of Henry IV.

²⁷ In 1891 represented by a group comprising some "half-dozen families living in log houses on the shore of a cove called Carawalla at the head of Henrietta Island. A few more families are scattered along the shores of the lower half of the inlet." (Low, 127 L.) Dillon Wallace, 277, speaks of this village as Karwalla.

²⁸ I have in another paper (V, vol. 65, no. 4, 1926) pointed out indications of what I consider to be evidence of a much older Eskimo and Montagnais culture relationship occurring before the period of contact of the two races on the southern and eastern coasts of the peninsula. These indications I suggested might mean association at an earlier epoch in the Hudson Bay region. (See also Speck, I, 6: 276.)

²⁹ Aside from local tradition regarding Eskimo habitation within the gulf of St. Lawrence,

Hamilton inlet in earlier records bears the name Eskimo bay. The Eskimo of this large body of water have been noted by several authorities dating from Cartwright (1770) down to the present time (Turner 1881, Hawkes 1916)³⁰ as Aivuktuk, Ivuktock, all being forms of the same name.

Some doubt has been expressed by the historian of Labrador, Gosling, as to the permanent residence of the Eskimo south of Hamilton inlet. He says

I have given reasons for my belief that the Eskimos did not frequent southern Labrador and the Straits of Belle Isle at the time of the discovery. I am of the opinion that they did not move south until some time after the coast began to be frequented by Basque, French and English fishermen, and that it was the desire of obtaining iron tools and weapons and other European articles which induced them to do so. This period I place at the end of the sixteenth and early seventeenth centuries.³¹

He further states that the French about 1702 found Eskimo in considerable numbers in the Gulf of St. Lawrence as far west as Anticosti, and James McKenzie reported them in 1808 as present about the straits of Belle Isle and forty-five leagues east of Anticosti inside the gulf.³²

Yet we have the express statement of Cartwright, who knew them well over a period of ten years, that there were three settlements south of Eskimo bay (Hamilton inlet). There is reliability in this assertion, for his statement is corroborated by Lieutenant Curtis (1774)³³ as far as the name

there are some archaeological indications announced as being found near Blanc Sablon by W. A. Stearns (p. 276), who observed relics of what he thought was a conflict between Indians and Eskimo on the sand dunes at that place. Gosling reviews the events of Indian-Eskimo conflict (pp. 165-167). Eskimo memories still linger, though only vaguely, in Montagnais-Naskapi historical tradition. The usual designation for the Eskimo is *Āyestci'méo* (plur., *Āyestci meuts'*) (Lake St. John, Mistassini), *Aisi méo* (plur., *Aisi méuts'*) (Escoumains, Seven Islands). The translation of this term seems to puzzle the natives, some of whom even explain it as meaning "bad people," others as "raw-meat eaters." It is possible that it is derived from an old term *Eskimeo*, and is their dialectic form of this with characteristic Montagnais-Naskapi *ts*=Cree *k*. A second designation for the Eskimo is *Kātsēkwacweúts'* (plur.) (Lake St. John band), *qātsēgwažweuts* (Escoumains), which corresponds with the term given by Lemoine—*kātshekwašweuts* (p. 115). These forms are interpreted as "those who use the harpoon."

³⁰ P. 34.

³¹ Pp. 165-166. He evidently chose to ignore the French sources, among which for instance is the testimony of Champlain's map. (H. P. Biggar, *The Works of Samuel de Champlain*, v. 3. Champlain Society, Toronto, 1929.)

³² Masson, 406-7. Eskimo point, near the mouth of Romaine river, is a traditional site of this people.

³³ Quoted from Gosling, 169; Curtis, 64.

recorded for one of the principal settlements is concerned. Cartwright's Auchbuchtoke is none other than Curtis' Ogbuktike. Hawkes³⁴ gives three group names to the Eskimo between Hamilton inlet and the strait of Belle Isle (which he also recorded as comparable with Ogbuktike): Putlavamiut, the people of Battle Harbor; Netcetumiut, sealing place people, Cartwright (Sandwich bay); Aivitumiut, whaling place people, Rigolet, or Hamilton inlet. So much for the evidence of Eskimo residence on the southeastern coast in historic times.

The question again arises of the southern Labrador Eskimo penetrating the interior of the southern peninsula, the region held by the Montagnais-Naskapi since the first mention of these people. Eskimo occupancy is indicated for the territory in question on the chart alluded to. If the ground be taken that the historic Eskimo confine themselves to the coasts and do not penetrate the interior at all, cognizance must be given to a definite exception to the rule as concerns northwest Labrador. In this instance we have a recent condition to consider.

The northern Labrador Eskimo penetrate the inland steppes when hunting caribou, the Indians in consequence of its preëmption by the Eskimo have continued to avoid it.³⁵ And all the while we are coming to know more of inland Eskimo groups with the accumulation of study material on the Caribou Eskimo by Birket-Smith³⁶ and the Copper Eskimo by Jenness, groups typifying a supposedly earlier culture epoch for the people.

Beothuk.—Earlier historical phases of influence involved in the Montagnais-Naskapi migration question should not be dismissed without reference to the problem offered by the Beothuk of Newfoundland, now extinct for

³⁴ P. 34.

³⁵ Low, 44-45 L, and in particular R. J. and F. H. Flaherty. Low (44 L) refers to the Eskimo hunting caribou inland north of Stillwater river and keeping north of the Indian boundaries when so engaged. Turner (176) states that the Eskimo of Ungava are strictly littoral and seldom venture far into the interior unless it is along the valley of some large river. He recounts an event occurring among some Koksoak Eskimo, in 1883, who were camped thirty miles above Fort Chimo which is itself twenty-five miles from Ungava bay (179-80), and gives the terminus of the four families (30 individuals) of the Koksoagmyut (Koksoak people) as seldom going farther southward than the confluence of the Larch river or the North river with the Koksoak (184).

³⁶ Dr. Birket-Smith has moreover expressed himself clearly in correspondence with Dr. Hallowell and myself, in favor of the assumption of an old basic culture in common between the boreal Indians and the Eskimo, on the ground that the elements in common do not point to late contact since these are widely distributed Eskimo properties. Strong, II, 126, offers a similar explanation of cultural resemblances between Labrador Indian and Eskimo archaeological remains. See also Birket-Smith, II.

one hundred years. While we may refer again, in passing, to the Beothuk question, it will be archaeological evidence only that will solve it.

The basic cultural affinity of the Beothuk with the Algonkian is recognized by Jenness,³⁷ this evidence falling in line with a previously expressed opinion of my own from the point of view of culture and language.³⁸ Jenness in the article cited inclines to an opinion that the Beothuk were formerly (prior to 1500) residents in the "Labrador peninsula in contact with Eskimo tribes now extinct or absorbed by later comers." The same author refers to Beothuk remains found on the Labrador side of the straits of Belle Isle by Lloyd.³⁹ I might add to this theory my observation that the characteristic use of red dye is to be noted for the present Naskapi of the same coast as far as Natasquan where about half of the articles collected show the fondness of these Indians for the use of red coloring.

Further archaeological investigation may later show, as Dixon supposed, that an early advance migration of Indians south, as well as north, of the St. Lawrence was constantly being urged eastward, keeping ahead of the eastward migration of other Algonkian-speaking groups of a later period, the first advance group or groups halting finally on the Atlantic coast and surviving in Newfoundland, where we know them as the historic Beothuk. It remains then for future research to provide evidence for the closing up of gaps in Indian distribution in the gulf of St. Lawrence to decide the question still confronting us as to the priority of Indian or Eskimo populations in the area.

DISTRIBUTION OF MONTAGNAIS-NASKAPI BANDS SINCE ABOUT 1850

The present distribution of the Indians embraces the entire territory of the Labrador peninsula between Hudson bay on the west and the Atlantic on the east, south of the 58° N lat. (Lake Minto and Koksoak river), except where the Eskimo occupy the coastal strips, to the gulf of St. Lawrence and the St. Lawrence river up to a line approximately extending from the lower end of James bay to the longitude of Quebec. This habitat has been held by Indians since the period when the first inland trading posts of the Hudson's Bay Company were established about 1824 and charts of the interior were made by its officers.⁴⁰

³⁷ Pp. 36-37.

³⁸ Speck, II, 69-70.

³⁹ A campsite of the Beothuk was discovered by W. J. Wintenberg on the north shore of the strait of Belle Isle, in 1928, thus proving that they occupied the Labrador mainland (62:4).

⁴⁰ Low, 14L-16L, summarizes the history of the trading establishments founded first by the French (maintained until 1733), later by the Northwest Company (1783), and finally ab-

It becomes imperative as a prelude to ethnological investigation in any region that the distribution of its population be ascertained, and the units, should they exist, assigned a location under their proper names. But it is particularly urgent that a step be made in this immense area toward the fixing of location and standardizing of nomenclature of its bands now that specific studies of religion and art of its inhabitants are soon destined to appear. In so large an area, indeed, as the Labrador peninsula (about one-twelfth the area of North America)⁴¹ the need of knowing the contemporary distribution of its population and the character of the many groupings into which its inhabitants would naturally fall is obvious. Considering again the extent of country, its inaccessibility in all times, the sparseness of people, and the mysterious seclusion of its roving tribes, it is small wonder that such a preliminary survey has never as yet been made.

To this task I set myself at the outset of the investigation carried on since 1910 in the ethnology of the tribes and bands of the vast region under consideration,—a heavy task indeed for one poor ethnologist. By questioning the older generations of hunters and by marking out the present-day hunting territories of those who live exclusively by this primitive activity it was possible to determine with some accuracy the geographical boundaries of the bands or sub-tribes with which I became more familiar. In these instances the procedure was to mark out on a chart the paternally inherited territories of the chase in which the various heads of families possessed rights. This process gave at the same time the family census of the group, with a certain amount of sociological information, the location and extent of the family holdings, and the total extent of occupation by hunting, of the band with which they considered themselves affiliated. It was also found that the various bands bore definite designations by which they were known from one end of the peninsula to the other. A surprising amount of knowledge regarding the band boundaries and even the family territories is current among the natives, referring to adjacent as well as to distant groups. This I take to be evidence of more or less settled occupancy of the

sorbed by the Hudson's Bay Company after the amalgamation of this with the Northwest Company in 1821. It was subsequent to this period that posts were established in the interior to expand and maintain the fur trade with Indians and on the eastern coasts of the peninsula (Fort Chimo 1827, Hamilton inlet 1837, Whale river and Georges river 1838, Fort Nascaupée on Lake Petitsikapau 1840, Nichicun *ante* 1840). Posts of earlier establishment on the coasts and the western portion were Rupert's House 1670, Moose Factory and Albany 1675, East Main 1685, Ashouapmouchouan Lake 1690, Mistassini about 1690.

⁴¹ The area of the peninsula is approximately 625,000 square miles, embracing the land from the mouth of the Saguenay river to the mouth of the Nottaway river on James bay northward as compared with 8,000,000 square miles for the whole of North America.

people for a number of generations. Direct tradition on the occupancy of the band habitats, not differing much from what they are at present, seems to go back at least a century and a half for those bands which have been investigated on the spot.

My own territorial studies include data worked out among the following bands: Lake St. John, Chicoutimi, Tadousac, Escoumains, Shelter Bay, Ste. Marguerite, Moisie, Mistassini, Nichikun, Michikamau, and in part Natashkwan. Some of these have been published (see Bibliography).

It is in connection with the remote and almost unknown bands inhabiting the northern and western, especially the Hudson Bay, coasts that our knowledge of boundaries is decidedly weak. It is from wandering members of these less accessible groups who turn up at times at the southern posts that occasional inquiries have been made. And I have drawn upon the knowledge of M. Alexandre Bellefleur, an educated native of the Seven islands group, who for many years had intimacy with the populations from Ungava to Fort George on the west Hudson Bay coast as an officer of Revillon Frères Company, and that of Chief Sylvestre Mackenzie of the Michikamau band, who has covered much of the region in his capacity of headman. With the knowledge gotten through these sources I have been able to plot the distribution, as shown on map 2, of these little-known bands which have not been visited by a systematic ethnologist.

This map of band distribution combining the more specific information, both published and unpublished, with that obtained from the sources just mentioned was also submitted to Dr. W. D. Strong upon his return from the Rawson-MacMillan Subarctic Expedition of the Field Museum, 1927-8, during which time he investigated the bands of the northeast coast (Davis inlet and Barren Ground bands) and the arrangement of the boundaries of this area was corrected and amplified at his hands.

It will be noticed that the populations forming the band groups are localized within the drainage areas of the rivers and lakes, and that they generally bear the names of these waterways attached to their proper names, as "Flat Lake People," "Big River People," "Where They Hunt Bear People," and so on. A truth to be reckoned with also is that the history of most of the bands is closely associated with that of the Hudson's Bay Company posts which for several centuries have dotted the northern wilderness serving the needs of the wretched roving hunters of their neighborhood, at the same time taking good care of the financial interests of the corporation. The whole question of the influence of the trading posts upon the economic and political culture of the hunting bands is one too complicated to treat intelligently at the present, and I foresee that it will remain a

point for discussion for some years at least. Pending, accordingly, other historical and ethnological conclusions to be brought out later through deeper study and comparison of the bands, the report on the contemporary lay-out of band distribution is of primary importance as a first step in the approach. To my mind, the early writers seem to have assumed, with good reason, the attachment of the various bands in the midst of which the posts were established, to the localities where they were found. Without contradicting the claim, a strong one in the minds of some students of the northern tribes, that the posts exerted an influence in bringing about the later location of some of the bands, as we know only too well, it seems clear that at the time of the first coming of the Europeans there were already bands with fixed locations residing on their ancestral river and lake territories in the southern portions of the peninsula. Some details in support of this view will be given as the groups are referred to in the ensuing discussion. Beginning with the post-contact period, about the middle of the eighteenth century, we have succinct evidence that the bands had settled down to residence with definite notions of hereditary land rights where we still find them. For the same length of time, moreover, they have apparently borne their present band names. The real problem of the origin of the subdivisions begins as we glance backward from this period. And it is with the later period, for which actual data are at hand, that we must deal before the theoretical one can be given attention. It may be added that for some of the bands information is forthcoming from the oldest men, an occasional one nearing or even past the century mark, to show their fathers and grandfathers to have been hunting and trapping over the same territories now held by them. This might settle the residence of such bands for a span of time longer than we know some of the Plains tribes to have occupied the hunting ranges assigned to them as habitats.

Another matter of concern in unraveling the history of the groups is their political status. The questions of band intermarriage, of possible early conflict between them brought about by trespass, of isolation and its effect upon the development of local characteristics in dialect and institutions, are all matters for future explanation. Certain of the bands still have headmen, and possess weak notions of independence, while others have merged together, and even a few we know to have disintegrated within the century. These changing conditions are natural to all regions. For many we know even less of the alterations brought about by time than we do here.

Accordingly I am urged to propose that henceforth the ethnographer regard the bands as units for a time until sufficient information has been accumulated to justify reclassification into larger groupings based upon

factual evidence. And I would express an opinion here that a similar method of approach be considered in reference to the ethnographical nomenclature of the widespread and diverse Cree and Ojibwa subgroups. The bearing of this method of consideration is much the same for both the eastern and the western portions of the subarctic area. It has been followed without hesitation for the Athapaskan bands of the northwest, and for some of the Plains tribes whose divisions are no more dissociated in culture and history than those we are engaged with. The ethnologist will recall also that a similar condition covers the southeastern, or Muskogean area, where the collective term "Creek" applied to them in colonial history breaks up in the hands of the ethnographer into a series of smaller independent units, as Dr. Swanton has so convincingly shown. Therefore, while retaining the terms Montagnais and Naskapi in a general sense for the inhabitants of the Labrador peninsula, by using the form Montagnais-Naskapi agreed upon by Hallowell and myself for the group as a whole, I would suggest recognition of the geographical band names in more explicit literature dealing with their history and culture. In this point of view I believe I have the agreement of other authorities on northern ethnology.⁴²

Comment seems to be in place at this point concerning the part played by the game animals of several categories as an influencing factor upon the type of land tenure and upon the distribution of the differing bands of the well-forested southern portion of the peninsula and those of the barrens of the north. In the former the animals hunted include, among others, the highly important moose and beaver; in the latter the caribou exceed other sources of food supply. It has been noted by some of those who are devoting thought to problems of northern ethnology that the tribal or band habitats are subdivided into inherited family districts only where provenience of the

⁴² Hallowell, p. 337, f. n. 1, has initiated the practice of employing the hyphenated term, giving some discussion of the reasons for doing so, as follows: "The time seems ripe to challenge the bisective terminology which it has been customary to apply to the Indian population of Labrador. The more we get to know about these Indians the clearer it becomes that this differentiation is arbitrary, if not actually misleading. There are indeed slight differences in language and culture to be encountered as we go from north to south as well as from west to east. But in neither of these directions is it possible to draw a hard and fast line between bands on any linguistic or ethnological basis and say, these Indians are Naskapi and those Montagnais. . . . At present it seems more rational to either refer to the bands by name, thus localizing them according to the extent of their hunting territories, or, in speaking inclusively to use the hyphenated term Montagnais-Naskapi, or Labrador Indians."

Dr. Cooper, in discussing properties of the Cree and Ojibwa about James bay, also recognizes the value of specific reference and employs band nomenclature for this area (see Bibliography). F. W. Waugh (correspondence 1923) complained against the looseness of usage of the two tribal names.

forest affords the varied animal food supply to be found more permanently and bountifully, and in more or less restricted haunts of sheltering environment,—the moose, beaver, porcupine, hare and the carnivorous furbearers. Where, on the other hand by contrast, the hunt is almost exclusively centered about the roving caribou, it has seemed, on theoretical grounds, that communal hunting, more like that of the Plains tribes in pursuit of the bison, would outrule the possibility of the localized family hunting territories. The problem has been outlined, as it existed in the minds of several of us, in a recent paper by Davidson.⁴³ The case seems to be borne out with some consistency in respect to the hunting habits and band distribution of the groups south of the Height of Land and those north of this watershed throughout the peninsula, as far as available information permits a judgment. We can begin to see that the bands depending upon caribou fail to show the family territorial subdivisions that we are so familiar with in the mixed game area stretching across the forest zone. Thus, among the bands of whose social structure we have some definite knowledge, the northern families of the Mistassini, the Nichikun, Michikamau, Petisikapau, Ungava, the Barren Ground, the hordes east of Moisie river, and presumably those of the Hudson bay coast, travel and hunt over the entire range of country regarded by them as their band habitat in communal groups of affiliated families. It is required, accordingly, that a distinction now be made between the economic habits and social structure of the bands of the two areas. Two types should henceforth be recognized as prevailing in the Labradorean culture-area, the variation being traceable, I believe, to famine conditions and the natural history of the game animals.

Without going further at present in generalizing on this question in its application to other hunting tribes of subarctic America, we may at least observe in passing that the zoning concept harmonizes with the information at hand concerning the caribou hunting Athapaskan, as representative of the tundra communal hunting hordes and the contrasting forest-dwelling, diversified game hunters and trappers of Algonquin and Ojibwa classification. And, finally, before determining the question of historical sequence from economic and sociological data on the two phases of hunting activity, there still remain a number of bands in this and other provinces of the northern regions to be investigated in the field.

⁴³ D. S. Davidson, II, 5: 50, says: "The territorial organization of the bands to the north of the Waswanipi are totally unknown, but as a result of a progressiveness in natural poverty as the barren-ground bands of the Ungava region are approached, it is to be expected that the family ownership of districts will assume less and less importance in the economic system of these people, the farther away they are situated from the Great Lakes region."

The recognition of long-maintained trade routes traversing the interior of the peninsula by Jesuit writers at the time of their first contact with the natives indicates the probable antiquity of trading expeditions carried on among the bands. It would be unwise to attempt to interpret the existence of precontact hunting territories for the region on the basis of the existence of the supposedly aboriginal trade routes, yet there is, nevertheless, a question of relationship between the two traits underlying the evidence that we have, and I am indebted to Dr. C. Daryll Forde for calling my attention to it. The exchange of commodities and hunting privileges between the family groups, in the form of economic hospitality operating among them, is well understood among the present natives and has been referred to in several of my previous papers on the family hunting territories, for instance those on the Mistassini and Lake St. John Indians. Aboriginal trade routes now being studied by Dr. Swanton are mentioned in the Jesuit relations as existing throughout the region for which we now have hunting territorial data. The subject is one to be considered theoretically in future study of the social life of the northeast.

One might even be justified in aligning the early routes of Indian migration into the peninsula with the trade routes. The principal river thoroughfares traversed in historic times by Indian trading brigades under the régime of the Hudson's Bay Company, and presumably before it, are and have been Rupert and Marten river and the Eastmain, leading from James bay to the interior lakes, Mistassini and Nichikun, and Hamilton river eastward from the interior out to Hamilton inlet and the Atlantic coast; the Kaniapuskán and Koksoak rivers from the interior to Ungava and the northern coast; the Ste. Marguerite, Moisie, and Manicouagan from the interior southward to the coast of the St. Lawrence river and gulf; and most prominently the drainage system of Lake St. John connecting the St. Lawrence coast with James bay by the ancient Indian route comprising the Saguenay, the Chamouchouan, thence to Lake Mistassini and Rupert river. This list does not take in the smaller river systems ascending from the east coast of Hudson bay and the north coast of the St. Lawrence, which for their part have served minor rôles in trading operations and band migrations of the region. These routes of travel maintained so constantly in historic times are indeed the very lines of travel that coincide with the supposed routes indicated by the early band names applied to the original tribal units mentioned in the Jesuit narratives, and traveled by the Jesuit Fathers themselves with Indian parties (see p. 558). These I have indicated with approximate locations on map 1. I believe it is not going too far at present to point out the river highways mentioned above as being

those followed by the ancestors of the Montagnais-Naskapi bands at the time of the original peopling of the region east of Hudson bay to the St. Lawrence later, if not by the first Indian invaders. Since we are disposed to include the Beothuk within the classification of the Indian populations, these Indian migrations would require to be estimated at a time before the inland penetration of Eskimo within the coasts of the gulf of St. Lawrence and into the inland interior of the peninsula. This would mean placing the diffusion of the Indian groups over the southern portion of the peninsula, the St. Lawrence coast, eastward to and including Newfoundland, at a date prior to the southward drift of the Eskimo inside the straits of Belle Isle, a drift which presumably interrupted the continuity of the Montagnais-Naskapi and Beothuk zone of occupation. Thus the evidence for Indian priority in the southern interior and on the southern coast of the Labrador peninsula is tentatively indicated, a supposition which materially affects the theories of sequence in Eskimo culture types as regards the priority of inland over coastal habitat, forming the basis of contention between the variant attitudes of Drs. Birket-Smith and Mathiassen.

Beyond their own boundaries the Montagnais know few other nations, the Naskapi still fewer. The Wabanaki peoples are collectively included in the term Wapentsiúts (plur.), "easterners," which is their dialectic pronunciation of the proper name Wabaná'ki' (Montagnais-Naskapi -ts' being the equivalent of Cree, Ojibwa, and Wabanaki -ki'). The same name includes the Huron mixed bloods from Lorette who have been encroaching on the southern tracts evacuated by the Lake St. John Indians⁴⁴. The Tête de Boule of the Ste. Maurice valley are called Sagámi', the meaning of which is not clear, and at the same time Mótacé'wilnúts', "people of Montachene," the place named being Wemontachingue, the long known rendezvous of this tribe famous in Jesuit mission narratives.⁴⁵ With the Waswanipi Lake Indians, the Lake St. John and Mistassini hunters frequently have contact, being called Wacwánipiwilnúts (Lake St. John), "people who fish by torchlight," in reference to the habit of taking sturgeon in this manner.⁴⁶

The distant Hudson Bay Cree are denoted Ayócwínbegwílnúts', "across

⁴⁴ Speck, VIII.

⁴⁵ The tribal and family hunting territory boundaries of the Tête de Boule, with references to the meanings of names given to the tribe, which occupies a position adjacent to the Lake St. John Montagnais, are treated by Davidson, I. The same author gives other comparative notes bearing upon the two tribes (III).

⁴⁶ For the only specific discussion of the ethnology of this tribe and its habitat, see Davidson, II.

the salt-water people" (winibégw, sea, or salt-water not fit to drink on account of its taste).

Among the Montagnais-Naskapi a general distinction is made, when alluding to themselves, between those bands who hold hunting territories in the interior plateau of the peninsula and those who frequent the coastal regions. The inhabitants of the interior respond to the designation Notcimî'-wîlnûts' (Lake St. John), "interior forest peoples," while the others are Wini-bégwîlnûts', "seacoast people." The natives themselves are quite conscious of the distinction. It carries, furthermore, some economic differentiations of which the Indians are thoroughly aware. It would come nearest to forming the basis for a tribal classification of the bands of the peninsula under the names Montagnais and Naskapi were it consistently supported by the grouping of dialects. As it is, the northern interior bands that have in literature merited the name Naskapi exhibit an n, or y (Mistassini), between vowels, whereas the divisions on the southern coast from Seven Islands west possess an l, including Lake St. John. The older nomenclature, therefore, initiated apparently by Turner in 1894, cannot be considered systematically valid.

I now come to present the summarized results of the preliminary survey, giving the location of the twenty-six bands of Montagnais-Naskapi of the region as they appear on map 2, with native names and some references to authors who have bequeathed us data concerning their habitat either in the past or the present. The bands will be enumerated beginning at the southern end of the peninsula where the information on territories is more complete, some of the material having been published already, while some is still in process of preparation.

Lake St. John Band (Pîckwâgamî'wîlnûts', flat lake people)

This band of about 50 family heads is distributed over an area embracing the headwaters of the Ashouapmouchouan, Mistassini, and Peribonca rivers from about the Height of Land southward to and beyond Lake St. John. Lake St. John hunters have only recently been expelled from the region south of the lake to the headwaters of the Batiscan river through invasion of the territory by the leased hunting and fishing clubs and the founding of the Algonquin park. The trading center of the band has always been on Lake St. John at several points, formerly Metabechouan, in recent years at Pointe Bleue. It has resided in the same haunts since the first notices of its existence by the missionaries early in the seventeenth century. A large number of mixed bloods who have settled down in part to farming gives this group the highest census enumeration of any. Some of these families are of St. Francis Abenaki and Wawenock descent.

Studies of the band have been extensively carried on by the writer in various branches of Lake St. John ethnology, the bulk of which are still incomplete and unpublished. Details, however, of family hunting territory claims and boundaries of this and the adjacent bands (Chicoutimi, Tadousac, and Escoumains) have been charted and given in a report of 1927.⁴⁷

Chicoutimi Band (Cekútəmiwlnúts', head of the tide people)

At present the band is under the administration of the chief and agent at Lake St. John, and is listed under its population. Four major family groups were noted in 1915 whose trade and mission headquarters are at Ste. Anne, opposite Chicoutimi on the Saguenay river, their hunting territories being up the Shipshaw river.

This is one of the oldest mentioned of the group subdivisions and its mission was the principal scene of labor of the early missionaries to the Montagnais. The personnel of the band has changed greatly from time to time without having gained strength.

Information pertaining to its hunting territory proprietors has been published in the report cited for the Lake St. John band.

Tadousac Band (Wəca't'cékwilnúts', gulf people, steep river-mouth people)

Discussion of the recent status of the band is given in the report already mentioned. Tadousac, formerly and for three centuries the chief center of population of the Indians of the entire St. Lawrence below Quebec, has become entirely abandoned by them, some of the errant families being traced to the Bersimis and the Escoumains bands. Several generations ago the families of this group hunted toward Quebec as far as Murray bay and beyond, but only one operated there in 1915.

Escoumains Band (Ecsi'biuci'búwlnúts', river of clam brooks people; Ecsi'pí'wlnúts, clam river people)

This band has been described as to location and hunting grounds in the publication referred to covering the three previous bands. Its districts extend from near the Saguenay eastward to Portneuf river. At the time of my visit (1915) it comprised 44 individuals, by the 1924 Indian census, 28. It has now no political unity and no chief. My report listed eight family heads of which four had married French Canadians.

Bersimis Band (Bétsi'amúts' ilnúts', coming out from the interior to the coast people)

For this large and important band, evidently the chief center of the St. Lawrence river Indians, which would represent the typical Montagnais, we

⁴⁷ Speck, VII.

have as yet no territorial studies upon which to define its boundaries.⁴⁸ The Bersimis band is, however, bounded by groups for which such data exist, so that the eastern and western termini of their hunting ranges may be given as Portneuf river and Manouan on the west and Toutnustuk on the east. Northward these hunters penetrate to beyond Pletipi lake, where their boundaries impinge somewhere upon those of the Nichikun band.

In the first section of this paper a number of references to the Bersimis band in early French accounts have been made to establish proof of their residence in the same region for at least three centuries. The band possesses considerable independence and has its own chief. Historical inferences can hardly be made concerning the supposed position of the Bersimis band as a center from which migration has spread eastward until the question has been given attention on the spot. Even the native form of the band name has been rendered variously by different authorities, among whom Cabot has suggested the interpretation, "leech-water people."⁴⁹

Godbout Band (Wawîpəguwîlnûts', whirlpool people)

At this point the conflict between the current of the St. Lawrence and the tides of the Gulf, which meet inside the long sandy point at Godbout, causes swirls which have given a name to the locality and the band.

The language of this band is characteristic of the Montagnais of Bersimis who are only several days journey by water westward. Their proximity to Pointe des Monts, which is visible from their village at Godbout, some 15 miles to the east, makes it very plausible to conclude that a band of Indians living at Pointe des Monts, formerly known as Pointe des Monts Pelés, mentioned in the Jesuit Relations of 1661 (p. 29), were either the same or a related band. Hind (1863) thought that they might have been a branch of the Naskapi, though of course this could mean very little without having access to linguistic evidence except in reference to the habit of ascending to the interior plateau for the winter instead of living continuously at the coast.

This band is now badly disintegrated, enjoying no political entity. Information obtained from one of its members suggests that the number of families is twelve. They are said to hunt within a hundred miles up Godbout river, residing at other times in houses at the village of Godbout. Comeau has casually recorded customs and history of this band.

⁴⁸ The notes collected while working with the Bersimis band by F. W. Waugh of the National Museum of Canada should be borne in mind by anyone taking up its investigation.

⁴⁹ Lemoine, 279.

Shelter Bay Band (Wəsakwəpəṭā n̄wīlnūt', mossy portage people)

This small band composed of three related families is named from the river up which they hunt inland for almost a hundred miles; Mossy Portage river in the local dialect, but Shelter Bay river to the whites. The band has no organization to mark it as an old one with an independent background, for the families comprising it are related to members of the Moisie band, and are all much mixed with French blood. My conclusions, which are soon to appear in a paper giving the results of investigation of this and neighboring bands to the eastward, are that this little community is an example of the process of the integration of offshoot bands—illustrative of conditions typical of the region in the past as well as the present. I would estimate that the territory of this band has been in the hands of its proprietors for approximately 110 years and that their ancestors migrated from the Seven Islands post of the Hudson's Bay Company.

*Ste. Marguerite Band (Tceman'bi'ctukwīlnūts', river
parallel with hills people)*

From notes taken down while investigating this and neighboring bands (1922-25) at their summer gathering point, Seven islands, the following abstract has been prepared concerning the boundaries and social character of this band. Its known history dates back several centuries to the beginning of Jesuit accounts of activity among the natives of the lower St. Lawrence. Hind (1861) has something to say of it. Some of the family patronyms he gives are still those of its family heads. The Jesuit Relations also enumerate names of families at this station.⁵⁰

The territory, held by the ten major family groups forming the band, begins a few miles back of Seven Islands bay and follows closely the drainage of the Ste. Marguerite river to the Height of Land where the nomadic communal hunters of the Kaniapiskau and Petisikapau lakes region are encountered. With these people and the Ste. Marguerite band there seems to have been close affinity in the century past. Only since about 1857, says Hind, have the present families been coming out from the interior to the coast at Seven islands. But he did not find out who had formed the native population previously when the mission and trading settlements were flourishing under the French. Bearing upon this question we have the following to consider, namely that among the Indians of the coast an old name for the Seven Islands people seems to persist: Wacáuwlunuts', "bay people." This name does not specifically refer to either of the band units (Ste. Mar.

⁵⁰ Vol. 54, 1673-74, Narrative of Louis Nicholas, and Crépieu, v. 54.

guerite and Moisie bands) that spend only several weeks there during the summer, for they have their own designations. It might be surmised, however, that the name "bay people" had some significance in earlier times as being the proper name of a population then resident nearer the coast than the present two bands mentioned. The names of tribes mentioned in the narratives of the eighteenth century (discussed in the first section of this paper) may then be those of groups which have since dwindled and merged their descendants with the present bands. I was in some doubt for a time how to dispose of the name "bay people" among the list of band names recognized by the Indians of the whole St. Lawrence coast, because the term cannot now be applied to any social unit having the structure of a band. It is now a non-specific geographical term.

It is important to note that this band is the one farthest east on the coast to speak the idiom containing *l*, by which the populations along the St. Lawrence southwestward are characterized. To use the old nomenclature they would be the most easterly group of the Montagnais-speaking bands. The line of longitude of Seven islands (about 66°) is therefore something of an ethnic and linguistic terminus on the coast and the southern watershed.

The band consists (1925) of ten family subdivisions, some of them French mixed bloods. While the band seems to display some consciousness as a social unit, there has not been for many years a separate chief over it. Since 1922 the chief appointed by the government for the several bands under the one agency has been Sylvestre Mackenzie of the Michikamau band.

The St. Marguerite hunters south of the Height of Land observe the separate family hunting system with the same general underlying structure as we find it westward through the forested southern watershed of the peninsula.

Moisie Band (Mictaci-'pi'wilnûts', big river people)

The Moisie, or Big River, has for ages been an artery of movement from the coast to the interior for the natives, and it is still the route followed by bands and individuals destined into and out of the central peninsula as far even as Ungava. Hind and Low have traveled it and left accounts of its people as sources to be referred to. My own notes on the band, as yet unpublished, form the basis of the following brief notice of its location and ethnic constitution.⁵¹

⁵¹ The two preceding bands have been studied over a period of some ten years, as occasion permitted, and collections of ethnological specimens have been made for the American Mu-

Like the Ste. Marguerite band, the Moisie people seem to be of mixed extraction so far as original units are concerned. The families who operate nearer the coast may be the residue of a population of former times which belonged south of the Height of Land, and the northern families of those belonging in the interior. Whatever may be the explanation of the somewhat confused condition of affairs now it is fairly certain, from native sources of information, that it has not undergone extensive change within the last two generations. The families falling under this band classification number ten, and hunt and trap the territory up Moisie river and east of it to Mingan and Attikonak lakes, from the coast to the headwaters of Hamilton river beyond the Height of Land. Also like the Ste. Marguerite Indians the majority of the families operate south of the divide, have smaller hunting grounds, and observe more closely the family system. The northern families seem to have connections with the limited nomads of the interior lake country whose populations have in recent years become so dispersed. Upon the closing of the Hudson Bay Company's post at the mouth of Moisie river the band transferred its summer mission and trading center to Seven islands. It has now (since 1915) no separate chief.

In Hind's time (1861) the hunters from Ashwanipi lake were referred to as the "Aswanipi" band, which he says was dispersed in the nineteenth century to the north and east. This lake is now hunted by families which come under the name of the Moisie group who may have pushed northward since that time.⁵²

Mingan Band (Akwandji'wilnuts', where something is washed ashore people)

The name of this important band, for which unfortunately there is little to say at present since it has not been investigated in detail, refers either to whales or boats being washed ashore, according to the chief, Mat-thais Napanú. Probably whales are intended, because the group of islands lying off the shore for about eighteen miles of the coast are a favorite resort of the animals. The Indians even in recent years have availed themselves of the supply of blubber afforded by stranded whales near the Mingan river.

The family districts have not been investigated. Information, coming from the chief referred to, states that following up the Romaine river in the interior, their hunting grounds approach the waters of Lake Ossokmanouan

seum of Natural History, Museum of the American Indian (Heye Foundation), and the National Museum of Canada. Studies of native art and religion are being completed for publication.

⁵² Hind, 1:82.

and head of Hamilton river, adjoining those of the Moisie Indians on the west and the Natashkwan on the east. He estimated that the family heads numbered about fifty. The trading post serving them is at Mingan. It should also be added that some informants at Seven islands designate the Mingan Indians as Mənto'ci'bu wilnúts', "Spirit river people."

Natashkwan band (Notackwānwilnut', hunt bear people)

In 1924 this band consisted of twenty-six families, hunting on the upper waters of Natashkwan river almost to Hamilton river, east of the Mingan hunters. At the time there was no chief, although the people felt themselves to form a social group of quite distinct unity. Their rendezvous and trading post is at the mouth of their river. For their mission they go to Musquarro. Owing to lack of detailed information it is at present impossible to say whether or not they observe adherence to the definite inherited family hunting grounds although Mr. W. R. Joncas informs me that they hunt in companies composed of affiliated families until late in winter when they break up into smaller groups. Pending the opportunity to secure more explicit social data on the band, the list of family heads made out at the time of my visit is given here.⁵³

The Natashkwan band is evidently an old one yet we have no means of dating events in its historical background. A dialectic peculiarity encountered here is the change from *-j-* to *-h-*, while the dropping of *-s* from the termination *-ts'* of other dialects links these dialects with those of the region farther north. Dr. H. G. Bryant visited this band in 1912 and published a short account of his observations which, however, does not advance our knowledge to any great extent, and Dr. C. W. Townsend also published some notes of his visits to this band.⁵⁴

*Musquaro or Romaine River Band (Unamənoc'bu
ilnut', red paint river people)*

The name refers to the small sacks of red paint sold by the Hudson Bay Company traders to the Indians. It is the native name of Romaine

⁵³ Family heads of the Natashkwan band (1924 : 1 Joseph Spatò, 2 François Kutəwā (one son), 3 Jean Baptiste Spatò, 4 Bellefleure Charles (one son), 5 Charles Bellefleure (one son), 6 Simon Belnal (one son), 7 Pien Wacò, 8 Pien Napec (one son, (father of no. 14), 9 Jerome Wapistanic (father of nos. 10 and 19), 10 Michen Wapistanic (two sons), 11 Dominic Lola, 12 Etienne Belnabe (two daughters), 13 Etienne Maitimacò (one son and daughter), 14 Sylvestre Napec (one daughter), 15 William Malek (two sons), 16 Bastien Malek (single), 17 Paul Bernal, 18 Antoine Mist nab'ò (one son and daughter), 19 Philippe Wapistanic (one son), 20 Pien Wapistan (one son), 21 Bastien Wapistan (one son), 22 Bartolemi Spatò (single), 23 Williams Malek (two sons), 24 Bonhomme Malek (father of nos. 23 and 16), 25 Dominic Natakwanic (married 1924), 26 Simon Natakwanic (brother of no. 25) (one son).

⁵⁴ See Bibliography.

river (60° 75'). Another designation, Muckwaho' wihut's', "hard people" (muckwociú, he is a hard man), is applied to this band, with a variant form (Cabot, 280) as follows: Mœckwálo ilnüt', "bear tail people." This refers to a small river and a large system of lakes.

The Canadian Indian census gave a population of 239 in 1911 to this group. Specimens of their language show them to be a branch of the so-called Naskapi. In 1924 there were about 20 families at Olomanoshibo, or Romaine river.

Some confusion has resulted from there being two rivers of the coast bearing the name Romaine. In the *Handbook of Indians of Canada*, the editor has failed to recognize this fact in a footnote to the article "Romaine," in which he states that Olomanoshibo river is 125 miles east of Romaine. This is true of that Romaine river which empties just east of Mingan river.

Although it has been stated that the Musquaro Indians have deserted this station, this was not quite the case in 1924, when early in July the mission was being held there at which the Natashkwan band even was present.

*St. Augustin Band (Pôgwâ't'ci pu i'nû't', bastard, or
fatherless boy, river people)⁵⁵*

This small band (about 15 families according to informants at Natashkwan) has settled in the most easterly part of the southern barrens of the peninsula. Cabot estimates them between 40 and 50, in 8 or 9 tents. It has not been specifically studied. Nevertheless we know its hunting range to lie between the straits of Belle Isle and Hamilton inlet in the drainage of St. Augustin, Eskimo and Paradise rivers and eastward. The rendezvous of the band is at St. Augustin part of the time and Northwest river post upon occasion. The precise character of its hunting system has not been definitely ascertained, but from statements of Low,⁵⁶ and inferences from Cabot⁵⁷ and Wallace,⁵⁸ it would seem that its hunting is largely by companies rather than of the segregated family type. Cabot has had personal contact with its chief (William Ashini before 1917, Sylvestre Marks after 1920) and members, and Wallace met the same families in the Hamilton inlet region

⁵⁵ So named from a local legend concerning a foundling.

⁵⁶ Low, 128 1, speaks of this and the Northwest river band as being devoted to caribou hunting and disinclined toward trapping.

⁵⁷ Personal information of William B. Cabot. In 1921 he traveled with a group of twenty-one, which at times split up into smaller parties.

⁵⁸ Dillon Wallace (p. 15) says that Northwest river Indians descend to the St. Lawrence to trade instead of stopping at Hamilton inlet.

and at St. Augustin after a few months interval. There has been much intermarriage with other bands according to Cabot.

An important objective of research in connection with the band will be the determination of relationship with the former Beothuk of Newfoundland, for which assumption there is already at hand historical and ethnological evidence.⁵⁹ (Incidentally specimens collected through occasional contact with its wandering members show a noteworthy prevalence of red coloration.) And again a certain assimilation of Eskimo blood may be suspected for reasons given in the first section of this paper.

Northwest River Band (Cah'dji'u i'nut', outlet, or foot of lake, people)

Another unstudied band which has, however, often been mentioned by explorers, located north of Hamilton inlet to the districts of the Davis inlet band, and westward up Northwest river almost to Lake Michikamats, bordering on the Michikamau Indians.

Low's statements show these Indians to be nomadic caribou hunters within their own confines.

Largely dependent upon the caribou both for food and clothing, they have little inclination to trap for fur-bearing animals.⁶⁰

Part of the tribe, coming out to the Northwest river post, whom he calls Montagnais, hunt between Hamilton inlet and the gulf of St. Lawrence (which has reference to the St. Augustin people), and others whom he calls Naskapi hunt to the west and northwest of Hamilton inlet. He gives for the combined population of both groups trading at Northwest river about 200 persons.⁶¹ Wallace has some observations upon the history of this group. He thought that formerly there were nearly 100 families composing it and hunting between Hamilton inlet and upper George river, but that many of them hunt now south of Hamilton inlet.⁶² There may be some confusion here between this and the St. Augustin band.

Davis Inlet Band (Same native name as Northwest River Band.)

Knowledge of this band rests almost entirely upon the description of Dr. W. D. Strong (1927-8), although a vague allusion in Low's account⁶³ of

⁵⁹ Cabot (correspondence, 1930) thinks that the Poker, or Puckway, family may be of Newfoundland origin.

⁶⁰ Low, 128 L.

⁶¹ *Ibid.*, 41 L.

⁶² Wallace, 15. He met one of the hunters of the band, John Ahsini, at Northwest river and later at St. Augustin on the Gulf.

⁶³ Low, 41 L.

exploration (1896) to the native populations trading at Northwest river and Davis inlet as comprising about 200 persons may indicate that he had in mind some band grouping under the latter name.⁶⁴ Mrs. Hubbard also alludes to a camp of Indians on Resolution lake whose hunting grounds were distinct from those of the Barren Ground people.

Dr. Strong furnishes the following summary of the history and composition of this band, parts of which I quote from his letter.⁶⁵

The Davis inlet band originated as the result of the mating of a Scotch-Cree half-breed and an Ungava Eskimo woman in Ungava something over a hundred years ago. While the other children of this union appear to have reverted to their mother's people, one son came south to Northwest river. Here he married a Northwest river woman, and later one from the Mingan band. Later he moved to the vicinity of Davis inlet and his four sons married women from various Montagnais-Naspaki bands and continued to live there, maintaining quite close contact with the Barren Ground people. One son is at present the nominal chief, although his son Shusheshish ("Little Joseph") is rapidly assuming leadership. In 1928 the band was made up of five families comprising 36 persons. They have no specific names for themselves but if pressed claim to be *ci'catsu i'nuts*, Northwest River people. Members of the band range over a large territory extending from the Atlantic coast between Voisy bay and Hopedale west to the George river. The band territory is used in common and there are no traces of family ownership of either hunting, trapping, or fishing places.

In this case we have succinct evidence of the integration of bands through marriage out of the group, resulting in the formation of another. The case is theoretically typical of the social history of other bands; one specific instance like it being that of the Shelter Bay band previously noted.

Michikamau Band (Mici'kamo' i'nuts', great lake people)

The environs of Lake Michikamau, chiefly between this lake and Petisikapau, about 100 miles in extent, are embraced within the limits claimed by the hunters who give this name to their group.

The band has not apparently attracted the attention of previous travelers or writers. Therefore it is upon the testimony of its chief, Sylvestre Mackenzie, and other members that I base my assumption of its existence as a band unit.

The Michikamau Indians live and hunt almost continually as a community of grouped families. Only when pressed by famine do they separate

⁶⁴ Wm. D. Strong, III, p. 3, f.n. 4, gives information on this band and estimates the number of the Davis inlet and Barren Ground bands combined to be 94 persons in 1928.

⁶⁵ Correspondence, September 4, 1930.

and live upon small game. At other times it is the caribou that supports them. Under the jurisdiction of the chief, the group comprises thirteen family heads who are practically all related by blood and marriage.

Until recent years this band went to Northwest river for trading purposes. Now its members in one large company make the long and dangerous descent from their distant lake to the post at Seven islands by way of Menihek lake, Ashwanipi lake, and Moisie river each year.

Petisikapau Band (*Pétas'əku páuwi' nūt'*, [lake
narrow in middle people])

The information upon which this and the following band are classified is extremely little. There seems to be an area of several hundred miles, according to Low, with a very sparse population. And from testimony obtained from natives at Seven islands his claim is borne out, although a few of them from these endroits, east of Lake Michikamau north to the Kaniapiskau river, gave their identity as Petisikapau people and were so recognized by the others. My listing assigns six family heads to this group. I would not, however, insist upon separate classification as a band for these families, although they are listed as such for the present. The vagrancy of the hunters of this central region is a noteworthy feature of their lives, to which we may add the decrease of its population as causes contributing to the uncertain identity of its few remaining families. Both of these bands, if such they are, pursue the winter hunt for meat and caribou in collective groups. Hind refers in several places to "Naskapi" from this lake and mentions a Petisikapau band of fourteen families, which has induced me to consider its classification as a band unit of the past if hardly one of the present.⁶⁷

By the Indians at Seven islands the name Məne'yik wilnúts', "white spruce people," is also applied to the inhabitants of Menihek lake, a branch of Petisikapau, though I do not know how to discriminate between the two as band names. Were the records of old Fort Nascaupée, founded on Lake Petisikapau in 1840 and long since abandoned, available some light might be thrown upon the affiliations of the natives by tracing their family names.

Kaniapiskau Band (*Kani'a'pəckau wi'nur'*, [lake
with] a rocky point people)

The identity of this band, like that of the preceding, is known only on the authority of hunters from the region who were encountered and questioned upon the occasion of their annual migration to the post at Seven

⁶⁷ Hind, 1:82, 335.

islands. When questioned as to their affiliations they used the name given above, but it does not seem that there is much political consciousness to the few who answered to the classification. Low refers to Indians trading at Nichikun post who hunt about Kaniapiskau and down its discharge about fifty miles, but speaks of uninhabited areas between here and the western boundaries of the Indians from Northwest river, and another such on both sides of Koksoak river from the Nichikun territories to where those of the Ungava hunters begin.⁶⁸

Nichikun Band (*Nicukwūn i'nut'*, otter hunting people; *Ni't-cikwun i'wī'yuls*, their own term)

The environs of Lake Nichikun are the traditional haunts of this band, which has long been known as one of the important groups of the remote interior. Details of its earlier history and identity are given on page 567. It was one of the localities chosen by the officers of the Hudson's Bay Company for the establishment of a trading post, bearing the name Nichikun and was built sometime before 1840. At the time of Low's exploration (1893) it was still in operation and he recorded some facts about its natives. Since then, however, it has been closed. The Nichikun hunters, who with their families numbered about eighty in 1857, have become for the most part dispersed, leaving, by an estimate made in 1925 on the basis of information gotten from two of them who have settled down with the Indians at Seven islands, only eight families at the old station.⁶⁹ These latter now perform the long voyage to Rupert House annually for their fur barter and supplies. The informants mentioned gave the name of the present chief as Tca'li' (Charley). The Nichikun Indians do not disperse in separate family groups to hunt and trap, but operate communally in a company, as might be expected for a band so far north that they are dependent chiefly upon the roving caribou. Their social relationships seem to be close with the Mistassini Indians, and with those of Bersimis, though this does not apply strictly to their dialect.⁷⁰ The details of the inquiry made concerning this band are soon to appear in a paper dealing with the territories of the bands in the eastern interior of the peninsula. Low⁷¹ corroborates the location in general of the hunting grounds of the band as given above, stating that about 13 families of Indians traded at the Nichikun post at the time of his visit.

⁶⁸ Low, 101 I.

⁶⁹ Tommy Moar in 1922 informed me that the post had been shut down for about three years, and that about fifteen families had formed the band.

⁷⁰ F. G. Speck, III, 458-9.

⁷¹ Low, 101 L.

Mistassini Band (Micta' ci'ni'ú i' i' yuts', great rock people)

The details of a study made in 1915 of the band boundaries and family hunting territories of the Mistassini have already been published.⁷² It is therefore unnecessary to give more than a summary here of the facts recorded, by referring to the independent ethnic character of the band under its two chiefs, Johnny Boson and Charley Metoweci'c, to its approximately thirty family units, with about 137 souls (1915), hunting northward from the Height of Land, all around the lake bearing their name, to Pemiska and upper Eastmain rivers, and southward to the known borders of the Lake St. John band and the Waswanipi. The southern families of the Mistassini observe the segregated family hunting system, while the northern families are more given to roving in pursuit of the caribou. The Mistassini have received some attention from Low. He noted about twenty-five families in the band.⁷³

The band was first visited by the Jesuit missionary Albanel (1672-3), then later (1730) described in some detail for the times by Father Laure so precisely that there is no uncertainty of identity.⁷⁴

Rupert House Band (Aya'cwi'ni'bégo i' i' yuts', on other side of sea people; or Wi'ni'bégo i' i' yuts', salt-water people; or Wi'ni'bégo wacka' i' ganis i' yi' yuts', salt-water house people)

This relatively large and important band (over 250 in number) operates territory extending for something over 100 miles up Rupert, Broadback, and Nottaway rivers. The band is closely linked historically with the Mistassini Indians, both dialects sharing the same peculiarities (i.e., replacing the *l* and *n* of neighboring idioms with *i'* or *y*). The trading post and mission (Anglican) establishment is at Rupert House, with an outpost on Nemiskau lake. Neither the boundaries nor the social organization of the band has been given proper attention, despite the opportunity that Skinner had to treat them during a stay in its midst in 1903.⁷⁵ He indicated the interior frontier of the group on a map, and classified it as Eastern Cree, his boundaries coinciding in general with those marked out by Cooper in 1927.⁷⁶ Skinner gave to these Indians the name Nutcimiú-íiu, "south in-

⁷² F. G. Speck, III. Other studies of the ethnology of this interesting band are in course of preparation. (See also Speck, IX.)

⁷³ Low, 70-1 L.

⁷⁴ A. E. Jones, 35-9.

⁷⁵ Skinner, 9: 9-11.

⁷⁶ Cooper, 207.

landers," an erroneous term for them as a band, since it is the common designation for the bands of the interior plateau not the coast or its borders. (See page 580.)

East Main Band (I'sme'n ci'pu i'i'yuts', East-main river people)⁷⁷

So little is known of this group that hardly more can be said of it than to mention the opinion of informants among other bands who have general knowledge of its territories. These range into the interior up Eastmain river to the western border of the range hunted by the Nichikun people. Skinner, who reached the Hudson Bay Company's post at Eastmain, where the band comes out to trade, has nothing to say concerning it in detail. Low, for his part, notes that there are only a few families who hunt along the lower part of the Eastmain river, there being a long interval from Lake Nasaskuaso to below the Great Bend that is totally uninhabited. He goes on to say:

Previous to 1889 there were three families who hunted in the neighborhood of the Wabamisk river, but during that winter, with the exception of one woman and a small boy, these all perished by starvation or cannibalism.⁷⁸

Big River Band (Tce'ci'pui'i'yuts', Big river people)

Trading out at Fort George on James bay this band, I was told, comprises a large number of families who follow up Fort George river and Great Whale river inland to about the 70th degree of longitude, and northward to the southern boundaries of the White Whale river band on Little Whale river. I have no other facts to offer on the character of its subdivisions or its social composition. Skinner,⁷⁹ calling them the Fort George Indians, says that they speak the same dialect as at Rupert House, and assigns to this and the next band the name Kiwétin-īuwug, "north people"; evidently being their name among the Cree of the James Bay region.

White Whale River Band (Wabmek'wstuwi'yuits', white whale [river] people)

On the authority of chief Mackenzie, we have information on the eastward extension of this all but unknown band, the most northerly group on the Hudson Bay coast. He assigned to the band a communal hunting range lying north of Little Whale river to Lake Minto and Stillwater river and then eastward almost to Kaniapiskau river. So it was marked on the

⁷⁷ This is the name by which the band is known to the Mistassini.

⁷⁸ Low, 85 L.

⁷⁹ Skinner, 9-11.

chart of band distribution completed in 1926, but Dr. Strong secured information while at Davis inlet to warrant pushing the eastern line of the group to beyond Kaniapiskau as far as the Whale river that flows northward into Ungava bay. Thus there might well be some confusion in the identity of names of the various rivers named from the whales, and so, to admit the various possibilities since there are no prospects of an immediate opportunity of correction, I have indicated both boundaries on the present map, Strong's line cutting across the territory of the Ungava band.

While both Turner and Flaherty, in works previously referred to, mention this band there is nothing to quote that serves our purpose here. Low⁸⁰ gives the northern limit of these Indians as being on Clearwater lake and Richmond gulf.

Ungava Band (*Notci' mĩ ut'*, far away foresters;⁸¹ *Notci' mĩ u wilnũts'*, far away forest people)

Among the many references to this important band in current literature of exploration in the northeast there is little to quote concerning the boundaries of the area comprising its hunting grounds. No question arises here as to existence of separate family territorial limits, for we know from Turner, whose account of Naskapi ethnology has been for long the only monograph⁸² available for the whole galaxy of bands covered by the name, that the great movements of the caribou herds south of Koksoak river have determined its seasonal residence.

While the information we possess is sufficient to mark the termini of this band on the east as lying at Whale river, its southern and western boundaries are open to question. Low thought the Koksoak river to be the extreme northern limit of Naskapi wandering,⁸³ but information offered me by John Pierre of this band (now married and living at Seven islands) placed the caribou driving range somewhat westward beyond the Koksoak. I have mentioned under the heading of the White Whale river band the alteration of the Ungava band's western limits on the original map, as suggested by Strong. The position of this line will not be definitely settled until later, when the diverse groups will have been independently studied.

The territory division of this band and the Koksoak Eskimo (of four families comprising about thirty persons), who inhabit the shores of Koksoak river inland about 100 miles from its mouth to the junction of Larch

⁸⁰ Low, 44 L.

⁸¹ By this name they are known to the bands of the central and southern regions.

⁸² See Bibliography.

⁸³ Low, 44 L.

river, will have to be worked out. I have therefore indicated the residence of both peoples within the same district on the chart, since the Indians have pushed farther down the river under the influence of the post, and since the cessation of hostility between them and the Eskimo in 1821. These facts are taken from Turner.⁸⁴

The Ungava Indians come out from the interior to trade at Fort Chimo. Ethnologically they are one of the most important and least contaminated divisions of the Montagnais-Naskapi, and Turner's monograph is far from being an adequate study of their life. They were a large group prior to 1892-3, the year of famine in the northern peninsula, at which time they numbered 350,⁸⁵ afterward falling off to less than 200 according to Low.⁸⁶

*Barren Ground Band (Mucwáo cī'pu ī'nūt', barren ground
river people)*

The valley of the George river, the barrens westward to Whale river and to the head of Indian House lake, are the hunting limits of this now much reduced but still most interesting group of the typical Naskapi. A shrinkage of population since 1910 aggravated by the influenza epidemic of 1918 has lessened the occupied area of the band, and the diminution of caribou within the same period has developed a threatening prospect for its future. The barrens of the interior in this part of the peninsula are so desolate as to have earned the name they bear among the natives—mucwáo, "land of nothing," as they translate it—which term is likewise applied to George river. The region has exerted a lure upon explorers to such an extent that, while the band has remained one of the most remote and uncontaminated, the country itself has been described in travel volumes more than many other sections of the peninsula. Beginning with Leonidas Hubbard (1905), Mrs. Hubbard⁸⁷ and Dillon Wallace⁸⁸ (1903), and W. B. Cabot⁸⁹ (1903-10) all give us accounts of the country and passing glimpses of the Barren Ground band. The ethnologists, Waugh,⁹⁰ Michelson, and finally Strong⁹¹

⁸⁴ Pp. 179-80, 184.

⁸⁵ Turner, 183.

⁸⁶ Low, 41 l.

⁸⁷ P. 158. She gives the correct name of the band, Mush-a-wau-e-u-its, Barren Ground people.

⁸⁸ Passim.

⁸⁹ Passim.

⁹⁰ Since the death of M. F. W. Waugh, Mr. D. Jenness, chief of the Division of Anthropology, National Mus. of Canada, has placed at my disposal the notes of his winter spent at Nain in 1921-1922.

⁹¹ Dr. W. D. Strong had contributed information on the habitat of this band, and published several articles on his findings (see Bibliography).

(1927-8), followed, whose results are as yet still in unpublished form. My own small source of information on this band is chief Sylvestre Mackenzie of the Michikamau band, and again the fuller series of notes obtained through correspondence with Mr. Richard White, Jr. of Nain, who has generously given close attention to a multitude of queries sent him over a period of some five years for answers in consultation with the Indians of the band as they come out annually to his trading store. Upon these varied sources I have arranged the summary of facts concerning the band which are offered here.

From the testimony of the various sources, and especially upon the information obtained from Mr. White, it can be succinctly affirmed that the Barren Ground Indians are limited nomads who hunt in communal groups within the band territory rather than by separate families. The authority of the chief (whose name in 1927 was Kenneque) seems to be greater than among the forest bands. The total number of persons in the band was sixty-two, comprising about 14 family heads, in 1927, whereas in 1918 it had been 110, its decline caused by influenza and famine.⁹² A contact, with some intermarriage, has been maintained with the Ungava band in recent years.⁹³ The band is now carrying on trade with the establishments at Nain. Mr. White's valuable notes on its social structure and economic life are being prepared for publication, and an almost complete collection of ethnological specimens has been obtained for study of its aboriginal culture.⁹⁴

In concluding the list of bands announced in the foregoing summary I must stress the fact, indeed for my own protection against the time when the vast region covered will have come under closer ethnographic investigation, that uncertainty shadows the demarcation of many of the band territories. Some of the band identities themselves will, I am convinced, have to be recast. For the preliminary classification and arrangement offered, however, there has been testimony recorded from various quarters of the peninsula, and I have checked up the criss-cross of names and locations of the bands, back and forth, as frequently as was possible at the different posts visited. In my opinion the distribution problem will not be settled until every group has been questioned at first hand. This will not take place for

⁹² Waugh (correspondence, December 1923) found the situation more tragic, their number dropping from "over 200 (in 1914) to about 75 in 1921-22."

⁹³ Waugh observed the two dialects to be closely related

⁹⁴ These collections, of over 1000 objects, are in the Museum of the American Indian (Heye Foundation) and the University Museum, University of Pennsylvania, and some others have been sent to the National Museum of Denmark.

many years to come. In the meantime the band constituencies will have changed again, as we know them to have done in the past three generations. Shift of residence is constantly being caused by decline in population, by intermarriage, and by the changing conditions of the life of the game, and also to an extent that we can only guess at, by the influence of the policy of the Catholic missions in changing the location of their stations to suit the convenience of the missionary priests and nuns more than the economy of the Indians. A step has nevertheless been made in the direction of aligning our knowledge of Labradorian history and distribution of population in the present period, with as much care and precision as I am capable of.

Estimates of Native Population

Writers dealing with the region have, without exception, commented upon the rapid decline in numbers of the natives throughout the peninsula. And the same opinion is everywhere current among the traders and post officials as well as among the Indians themselves. The latter, it is interesting to note, attribute their fate in prospect to the change of culture brought about by the attempt to live in the white man's way. Looking backward into the Jesuit documents we encounter the same lament concerning the rapid extinction of the wretched natives through disease, alcoholism, and starvation caused by the disappearance of the game—chiefly in their case the caribou. While a feeling so universal in respect to the population question should have some truth in it, which I am not inclined to deny, it will nevertheless be of interest in dealing with the problems of population and its distribution in a hunting area, to compare the two lists below giving the numbers of the Indians at the various posts in 1857 and 1924.

TABLE 1. INDIANS OF THE LABRADOR PENINSULA VISITING THE HUDSON BAY COMPANY'S POST NORTHEAST OF THE SAGUENAY AND RUPERT'S RIVERS⁹⁵

Tadousac		100
Chicoutimi		100
Lake St. John	Saguenay	250
Isle Jeremie		250
Godbout		100
Seven Islands	North shore of the gulf	300
Mingan		500
Musquarro		100
Natashquan		100
Northwest river		100

⁹⁵ Hind, II, 117 (quoting Blue Book, 1857, Canadian Government; also Appendix II, Rept. of Committee on Hudson's Bay Company, p. 336, 1857.

Fort Nascopie	Interior of the Labrador peninsula	200
Rigolet	Atlantic coast	100
Kibokok		100
Great Whale river	Hudson's bay	250
Little Whale river		250
Fort George		200
Rupert's House		250
Mistassinni	Interior of the Labrador peninsula	200
Temiskaming		75
Woswonaby		150
Pike lake		80
Nitchequon		80
Caniapiscow		75(=3,910)

TABLE 2. RECENT POPULATION OF MONTAGNAIS-NASKAPI⁹⁶

East Main	251
Fort George	479
Great Whale river	100
Namiska (James bay)	152
Neoskwaso (James bay) ⁹⁷	140
Rupert's House	262
Fort Chimo	213
Georges river	36
Port Burwell	152
Whale river	57
Northwest river	308
Mistassini lake	159
Waswanipi	177
Natashkwan	74
Romaine	156
Ste. Augustme	34
Seven Islands agency	380
Montagnais of Pte. Bleue (Lake St. John)	773
Mingan	152
Bersimis.	565
Escoumains	28(=4,648)

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⁹⁶ Arranged from Census of Indians and Eskimos in Canada. Dept. Ind. Affairs, Ottawa, 1924.⁹⁷ On a tributary of Eastman river.

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UNIVERSITY OF PENNSYLVANIA,

PHILADELPHIA, PENNSYLVANIA

EDUCATION AT ONGTONG JAVA, SOLOMON ISLANDS

By H. IAN HOGGIN

In various parts of Melanesia are to be found people who are more akin to the Polynesians than to their more immediate neighbors. To the northeast of the Solomon islands is one of these colonies, on the atoll of Ongtong Java, also known as Lord Howe and incorrectly, as Leuanuia. The nearest Polynesians are to be found in the Ellice group and the Tokelau group, several hundreds of miles to the east, while the nearest Melanesians are on the island of Ysabel, only 160 miles to the southwest. There are a few marked differences between the culture of Ongtong Java and that of the central Polynesian areas, but in appearance the natives show some resemblances, and their language is a Polynesian dialect.

During 1927 and 1928 I made two visits to Ongtong Java and spent nine months there in all. At the time I held a Science Research Fellowship in the University of Sydney and a grant from the Australian National Research Council. I did my best to learn the language, but since nothing more than a few words had previously been published, my progress, especially at first, was very slow. The information contained in this paper is derived very largely from direct observation, overheard gossip, and casual conversations. Some of my other material was taken with informants and an interpreter, but only where I definitely say so is such information included here. I take this opportunity of acknowledging my indebtedness to Miss C. H. Wedgwood of the University of Sydney for many suggestions regarding the arrangement of the material of the paper.

THE atoll of Ongtong Java is made up of about one hundred small coral islands which fringe a lagoon. The islands to the north belong to what I call the Pelau tribe, and those to the south to the Luangiua tribe.¹ There are no real native names for the two tribes, but it is essential to distinguish between them. This is possible because they have a head village on the islands of Pelau and Luangiua respectively. With the exception of the places where the head villages are situated, the rest of the islands are each owned by a joint family. Every one of these joint families also owns gardens and a strip of land in the head village. In addition, there are some joint families which have only gardens and such strips, with no islands. The former joint families I call wealthy and the latter poor.

The joint family is normally patrilineal, its members tracing their descent to a common ancestor who lived usually not more than six or seven generations ago. In certain cases, about six per cent of the total, a child may be taken into the joint family of its mother, so that we cannot call the or-

¹ See my article *The Social Organization of Ongtong Java*, *Oceania* (Sydney), vol. 1, no. 4.

ganization strictly patrilineal in this respect. The eldest man of the joint family acts as its headman, and in him all the landed property is vested.

A subgroup of the joint family is also important. This I have called the cooperating group. Its composition is liable to vary somewhat, but normally it includes brothers and their children. If there are several brothers they may, though not necessarily, split up into two cooperating groups. In some cases a man and his children alone form such a group. Where descent is matrilineal the cooperating group will include the sister's children. This body of persons own canoes and fishing tackle in common, and they perform certain work together. If a married couple belong to poor joint families they will spend all their time at the head village of their tribe. In this case the husband always goes to live in the house of his wife, where are also to be found her sisters and their husbands, as well as her unmarried brothers. Should the couple be wealthy, only a portion of their time is spent in the head village, and the rest on the outlying island to which one or other of them belongs. If the husband is wealthy, then most of that remaining time will be spent on the island of his joint family. The two will occupy a house with his brothers and their wives and perhaps one of his sisters and her husband.

It has not always been apparent even to ethnographers that natives differ from one another in character, temperament, and abilities just as much as we do. At Ongtong Java, for instance, there is Piaka, a staunch old fellow who has definite opinions about what is right and, even if he is not always fair, will stick to any decision once he has made it; there is Ma'o, an extremely intelligent fellow and one of the best companions I have ever had; there is Mekaike, the king, a greedy slobbering rather unpleasant old man; there is Malehu, the sponger, who goes into other people's houses at meal times so that they cannot very well avoid asking him to join them; there is Lakiu, who is improvident and quarrelsome; there is Ke uki, who would not be bribed into permitting me to witness a ceremony; there is Kalio, beautiful as any man could well be but also as lazy; there is Makili, the glutton, who has to remain a bachelor because no woman will undertake to cook all the food he would require.

The natives have definite ideals of character. Their good man is first he who is generous to strangers as well as to relatives, who is of even temper and truthful. He should not be given to boasting, but nevertheless must be sufficiently forceful to carry out his will. He must be wary of entering into quarrels, but once he does he must persevere until he is victorious. Other desirable qualities are a sense of humor and independence of judg-

ment; that is to say, his views must not be unduly influenced by either his wife or his relatives. Although, too, he should be law-abiding himself, he is expected to temper justice with mercy in his dealings with other men. The natives dislike bad temper, lying, boastfulness, and greed, and those who are guilty are sure to be hated or scorned.

I shall treat the education of boys and girls separately because of certain differences between the two. First I shall take the upbringing of boys. Naturally not every boy is brought up in the same way, for the character of the persons with whom he comes in contact is bound to affect him. We can, however, take the ideal case and then point out where the differences are liable to occur. Ideally, the education of a boy is shared by his father, the head of his cooperating group, and his mother's brother. As the character of these three men differs, so does his education.

We may divide the life of the boy into a number of periods. The earliest, lasting from his birth till he is about three years of age, I shall refer to as babyhood. At this time his most important relative is his mother or, if she is dead, the woman who acts in that capacity, generally either the mother's sister or the father's sister. Occasionally the father's brother's wife may also act as foster-mother. For the whole of babyhood the child is fed at the breast. Only very seldom is a child weaned. The mother permits it to go on sucking until at last it rejects the breast of its own accord. This has always happened by about the fourth year. If the baby has to be weaned it is because a younger child has been born, and there is not sufficient milk for the two. Then, when the elder desires nourishment, the mother smears her nipple with a bitter fungus so that he will dislike the taste. Not a single case of this was necessary while I was living at Ongtong Java, for there was always about three years between the births in any family.

Even from the first few weeks other foods are given to the child. These begin with pap made from young coconut flesh. The flesh is masticated by the mother and then pushed into the child's mouth on her tongue. If the pap is very thin, she will dip her finger in and then permit him to suck the end of it. Later on, pounded banana is also given when available, which is not often as only a few plants are to be found. By the end of the third year the baby is allowed to eat anything that makes up the diet of its parents, with the exception of certain kinds of fish said to be dangerous to children. This is not a ritual matter but purely one of digestion. I was told that these fish would give children pains, but whether or not this was true I could not discover.

Until the baby is six or seven months old, the men folk are very rarely

permitted to hold it. If it is a first-born, the father is secluded from both it and the mother for up to twelve months. The object of this seclusion is said to be that it permits the mother to give her child undivided attention. In later births the husband is sometimes secluded for a couple of months.

Until the boy is a year old he rarely leaves his mother for more than a couple of hours at a time, and even then only his closest relatives are permitted to take him—his father, grandparents or, much more rarely, his uncle and aunts. Fathers love to carry their small children about and to play with them. It is a common sight late in the afternoon to see three or four fathers all talking together while each has a baby in his arms.

Natives hate to hear a baby cry.² Most of the children have only to open their mouths to yell, and they can get practically anything they want. This means that there is no regularity about their meals, for they are fed when hungry. It also means that to our way of thinking a boy is very much spoiled. He is always hushed and comforted even if the cry is nothing but pure temper.

At night the baby sleeps alone, but the mother is always very close to him. A mat is laid ready, and when he is asleep he is gently put down on it with his head upon another mat of fine workmanship. In former days he was covered over with a soft mat of banana fiber. Nowadays calico serves instead. If he cries during the night, the woman takes him on her breast, and he goes off to sleep there. During the day he is generally put to sleep in this fashion. The mother or other nurse lies on her back, places the babe face downwards on her breast, and as she sings a lullaby she gently pats its back to the rhythm, until it goes off to sleep.

These lullabies (*ha mamoe kamalili'i*, i.e., to cause children to go to sleep) do not sound especially soothing, but they have a very well marked rhythm which perhaps serves the same purpose. The one below is a typical example:

ke poie, ke poie.
ku makiala, ku makiala;
o angoa, o seuu,
kangahui anga,
momoa poi.
poi makiala,
poi.

² This seems to be a trait not peculiar to the Ongtong Javanese. I am told by friends in the Solomons that their Melanesian boys all disapprove very strongly when they leave their baby to cry for the good of his manners.

(A translation of this song is as difficult a matter as it would be to turn one of our childish songs into Polynesian. Roughly it goes something like this:

The doggie, the doggie.
He stands in the road, stands in the road;
Come here, doggie, come and break down our house.
Yes, big doggie.
The dog in road,
The dog :

Ongtong Javanese babies are not taught to walk as our own babies are. One never sees a parent standing with outstretched arms coaxing the baby to run into them. He begins to crawl as soon as he is able to, and when he can walk he simply walks. At this stage he soon learns that fire burns and the other elementary facts of nature. Sometimes this is by bitter experience, but more usually he is unceremoniously dragged away every time he goes near the umu, and eventually he no longer tries to do so.

Women never seem to use baby talk to their children. Unfortunately I neglected to get much information about the child when he was learning to talk. I well remember, however, a canoe voyage I made on one occasion with a whole family. The youngest child, aged about two, sat in front of the father, who kept on pointing out different things to him. As he pointed he would say the name two or three times and the little boy would repeat it after him. This small child was fascinated by what was apparently a new word for canoe, *papau* (the other word, *va'a*, is rather more commonly heard). He repeated this word over and over again, and I overheard him saying proudly to his father "*papau*" every time he saw a canoe for the next couple of days.

Habits of personal cleanliness are taught as soon as the boy can walk. If he is seen urinating in the house, someone will quickly carry him outside until he realizes that he is expected to go out. If he does not learn this quickly enough, a few cuffs generally impress it upon his memory. It is the same with the other acts of nature. At first he is only carried outside, but as he gets older he is taken down to the beach by his mother every morning and told what to do. If he should wish to relieve himself later in the day, he learns to tell one of his parents so that they will take him to the shore. Men are very particular about this because it amounts to a personal insult by the father if a child makes a mess in the presence of someone else. This insult has to be expiated by a small present of tobacco and, since no one likes to give away anything without a return, children are taught cleanly habits very quickly and with more scolding and punishment than they receive at any other time.

The next period of the boy's childhood is from three years of age till about seven. He is still spoiled at home, almost every whim being indulged. A few times I have seen a child of six or seven given a spanking because he went playing instead of carrying out some small task. Occasionally, too, one hears the mother laugh at the child when he gets into a temper. Neither of these occurrences is frequent, but they do happen in most families at intervals. At the same time, outside, the boy is getting some of the selfishness knocked out of him. He has begun to take an interest in companions of his own age. He and the little boys next door may go off to the beach a couple of dozen yards away and play with the sand or perhaps wrestle with each other. In the beginning none of them go far away from their own homes and, except when the fathers or brothers take them for a walk, they never see the little boys who live at the other side of the village. This association with two or three companions of his own age does the boy good. He learns that it is only in his own house that he is a little monarch, while outside he has to fight, though not necessarily with his fists, for what he wants. By this time, too, he may not be quite so important in his own home. If another baby has come along in the meantime, his place will be quite usurped. When a child is about six he feels able to take care of himself and he joins the rather larger group of boys from perhaps the nearest dozen houses and goes a little farther from home.

If the head of the cooperating group³ is going to take an interest in the boy, it is now that he really begins to do so. He invites him to his house and makes him welcome there. At first he is taken there by his father or by the man himself, but by the time he is five or so he is able to take care of himself on a walk that he knows well. If he really is made welcome at the house of this relative, and if perhaps there is also a little boy there with whom he can play, he may go there not infrequently. Sometimes he actually is taken by this man to live at the house semi-permanently.

It must not be thought that this severing of ties is painful to the parents. It is very rarely quite complete and always gradual. Even if the boy does not go off to his relative, he spends less and less time with his parents and more and more outside at games. Once the boy can actually look after himself a little, the head of the cooperating group has the right to countermand the wishes of the parents with regard to his future. Actually a conflict very rarely occurs, and usually the child is himself master of any situation. One case of a quarrel over a child did occur while I was living at Ongtong Java. It concerned a boy of six. He had been spending more and more time in the house where his father's brother was living. One day

³ As a rule the father's eldest brother.

while he was playing there the mother came and took him away. The wife of her brother-in-law resented this and attacked her, whereupon the two began to fight. The mother finally went off with her child, but when her husband returned home from a fishing expedition later in the day he was very angry with her. He could not persuade her to do what everyone considered her duty, namely, to let the child go to the house if he wished. Two days later the child became ill, and it was then said that the spirits of his dead relatives wished to kill him because of his mother's foolishness. He recovered, however, and either through growing indifference, force of public opinion, or because of the warning from the spirits, the mother permitted him to have his own way.

In the general talk which this affair brought up I only heard of two similar cases. In both of these the father's brother wished to have the boy with him more or less permanently. In one case the mother was admitted to be mentally defective, while in the other it was said that the mother had the right to refuse to allow her child, who was only three years old, to go to the house of the relative because there were so many children there already that some of them were being neglected.

During this second period of his life the child becomes acquainted with people more remotely related to him. Previously his circle had been little wider than those whose ties are very close. Now he learns of the joint family, the members of which he meets when he is taken for walks by his parents or when perhaps the whole joint family moves from the main village to an island. He is told what his relationship to each of these people is. Very early he has learnt the words for father and mother and their significance. Now he is told that other people stand in such and such a relationship to him and that he is expected to treat them accordingly. I have never heard a child being given definite instructions for behavior in these matters, but I have heard parents asked, "What relationship is So-and-so to me?" (*kama-la, 'anau hai-he?*). I think he probably learns the patterns of conduct to relatives not formally but by watching other people and from an occasional scolding if he should commit a breach of etiquette. These scoldings one may hear frequently enough.

All the time the boy is getting more and more independent. He is now able to look after his meal when he receives it. No longer does his mother remove the bones from the fish or open his coconut for him. He is also given small tasks. He may be sent on errands to neighbors, perhaps to borrow a saucepan or to get a light for a pipe.

It is now that he begins to hear of the essential taboos—that certain subjects may not be discussed in the presence of the sister, that everything con-

nected with the dead is to be avoided, that he must never approach the temple or a priest. He is told that he is not to do all these things, for at this time education is confined chiefly to prohibitions. He is also warned of the dire consequences of any infringement of these social laws. The place of our bogey-man is taken by the kipua, the spirits of the dead. Dozens of fearful examples will be told him by his parents and by other people with whom he may come into contact. All children know what happened to Ke laepa when he disobeyed his parents and strayed into the temple: they found him dead on the floor, killed by the angry kipua. Then there was 'Oma. He took an undue interest in the genital organs of his sister and was transixed to a stone in consequence by these same spirits. Folk-tales are told in the evening sometimes; many relate the evil consequences following on broken taboos. If the boy steals at home he will be told of more supernatural punishments. Sometimes, too, the punishment will not be supernatural. He will also hear of Peoa, who was soundly beaten by a neighbor because he stole some of her taro pudding. Actually, if a neighbor who was not a relative did beat a child the parent would be the first to take vengeance on his behalf. This might mean a fight between the father and the man of the house, or a wordy warfare between the women.

The third period of a boy's life lasts from seven or eight till puberty, generally in his thirteenth year. During this interval the more serious instruction begins. He is taught the names of trees, especially those which are useful—the kau tree for the carving of images, the ngaku for its fruit, the pingipingi for making canoes, and so on. He also learns how to husk coconuts, how to catch small fish, how to look for edible seaweed, how to make thatch, etc. At this time he first begins to climb coconut palms. He begins with low ones which have sloping trunks, for these are easy. The technique he learns from watching his elders far more than from definite instruction, although now and again he will receive a friendly word of advice.

By far the most important educational factors at this time are the boy's companions. The young lads of each section of the village form into groups. These groups, made up of boys from seven to eleven, go off playing together for hours at a time, down to the beach, on the reef, into the bush, behind the trading station, or even to play games with an ethnographer. Each child has been told of the few essential taboos and of the terrible results if they are broken. When they are all together they sometimes talk about these things and, by creating fears in each other, accentuate their own. The ruins of the house of the last priest at Luangiua are still standing. One day I was passing it and went inside. At once half a dozen little boys

who were playing ball near-by stopped in their game and came forward, but not near enough to encroach on the taboo ground. First one began to tell me an alarming tale of what would happen to me, and then another, till at last the whole six of them were quite afraid for my safety.

The brother-sister taboo comes into greater force with the boy as he grows to a consciousness of his sex. No normal boy, for instance, would dream of playing at games with his sister nor would he do so with another little girl if she were present.

The association with companions of his own age has by this time completely knocked the early selfishness out of the boy's character, at all events with regard to companions outside his own family. He has learnt that he is but one of the children of the village and must strive to win his way. Even the children of the king have very little extra prestige amongst their companions. Parents tell children to heed 'Opopo and Mahiki because they are the sons of the king, yet 'Opopo had his nose punched when as the son of the king he demanded the coconut another lad was eating.

During this third period the relatives of the mother for the first time begin to play an important part. Her brother invites the boy to his house, gives him meals, and sometimes takes him with his joint family to their island. In this way the boy learns the names of his maternal relatives, and as they behave to him, so does he to them. If a woman treats him in a motherly fashion, he will regard her as one of those to whom he must behave more or less as a son, and so on.

The chief duty of the mother's brother is to teach the boy any special formulae with which he may be familiar. At so early an age it is not yet possible to begin this instruction, so that, beyond the attitude of a kindly elder relative, nothing is really demanded yet of the mother's brother. The relations between the two are usually most cordial because, not yet being one of his teachers, the uncle can afford to indulge the boy, always an easier course than instructing him.

Toward the end of this period the boy is taken on fishing expeditions by his elders and taught how to be useful. He is shown how to steer, and by watching he gets a good idea of the differing technique of fishing.

In this period a beginning has been made in the more formal education. The result is that the boy's elders, his father, and the senior members of the cooperating group, especially its head, become more strict with him. The mild and indulgent attitude is replaced by greater severity. This is an easy transition for the elders because there are generally younger children to be indulged. It is also easy for the child to bear because of what he

has learned outside the family. In any case, the severity never reaches a "spare-the-rod-and-spoil-the-child" attitude.

Another factor which tends to make the child listen with diligence to his lessons is that his companions will ridicule him if he does not advance in learning at much the same rate as themselves. A child with a careless or neglectful father may even be instructed by a companion not very much older than himself.

I have not mentioned the mother since we left the babyhood period. As a matter of fact, no female relative has much share in the upbringing of the boy once he is out of that stage. The mother and one or two other women, the wives of his instructors, give him food at all times when he is hungry, and he in return does odd jobs for them, going errands, husking coconuts, and little things of that nature. The boy, notwithstanding, sees little of the women, for he is out of the house most of the time. The mother retains affection for her son and usually has a favorite, whom she will pet and comfort should he be ill. She will smooth his hair when he is sleepy or perhaps louse him.

The fourth period is a much longer one than those we have considered hitherto. It extends up to maturity and generally culminates in marriage at about twenty-one years of age. The visible sign that a boy has entered upon his fourth period of life is his being clothed. It is said that he is now old enough to work, and he is given serious tasks to perform. He has a regular place in the canoe and is shown the various methods of catching fish by his father or by the father's brother. Sometimes he goes out with his mother's brother, and then it is he who shows him. He has to take a share also in the collection of coconuts. When a house is built by relatives, he goes along and watches what is taking place, but beyond fetching small pieces of timber or a roll of sennit if it is required, he does no heavy work.

The taboos that do not touch life very closely but which it is important that he should know have to be mastered thoroughly. He is told of these by his closest elder relatives, but he no longer needs warnings about what will happen if he breaks them. Nevertheless, from casual conversation, he soon picks up a score of examples of the fearful results which have befallen such wicked people. He also has his first initiation into some of the ritual of the tribe, though as yet he plays but a small part in the ceremonies. He may look on while his father or grandfather or some other relative recites magical formulae over the shark catch, and then when it is over perhaps all he may have to do is to help carry the fish to the house.

When he is sixteen he begins to make his first fishing net. If he needs

instruction it is given him, but generally by this time he has watched so many being made that he is familiar with the technique.

One of the earliest accomplishments of children is swimming. The first lessons are given by the father or the elder male relative, but he gets most of his practice while in the group of playmates. To this performance is added now skill in fighting with spears. His own companions have already long ago instructed him how to use his fists and how to wrestle, but boys never play at fighting with spears. Each is instructed by an older adult, his father, or the other male relative. This man also teaches him how to throw the club (*angipungipu*) and how to use the dagger (*hoku*). The two of them retire to some unfrequented spot and there practise for an hour or two. At last the boy becomes as proficient as his master. Trial bouts between youths are never indulged in.⁴

Boys gradually get less and less interested in their boy playmates and more and more interested in the tasks of men, fishing, making nets, collecting bark for fish line, etc. By the sixteenth year he ceases to be a member of a group of boys and joins the men of the household in their work. But there is still time for enjoyment. The youths always play ball either with each other or with the young girls for a couple of hours every afternoon. Then at night there is dancing. During the latter time the boy takes a keen delight in intrigues with girls. If he is unsuccessful the village prostitutes fulfil his sexual needs. He has also to think of a possible wife and to show that he is a worker: no man likes to be thought lazy or inefficient, lest he stand little chance of getting a woman to accept him.

The fourth period comes to an end with the tattooing operation. This is carried out by a specialist in about four days of work. By that time the youth should have a complete knowledge of the broader technique of the society and a good acquaintance with the mythology and ceremonies. Folk-tales are learned very early, simply by hearing them repeated. Definite instruction by the older men is given in mythology, but up till now many of its finer points have scarcely been touched upon. Beyond the collective ceremonies in which everyone takes part the young men have little knowledge of the more complex ritual. As yet, too, most of them are familiar with only their living and recently dead relatives. They have not learned their pedigrees nor the history of their joint families except in its broader outlines. The finer techniques have also not yet been mastered, and they are still unable to weave mats on looms, make adzes, or catch sharks.

The remainder of a man's life is divided into two periods, from his

⁴ This is information from informants. There has been no organized fighting at Ongtong Java for at least thirty years.

manhood till he reaches about thirty-five years of age, and from then on till his death. In the first of these he rears a family and learns the ritual of special ceremonies, e.g., curing the sick, bringing a fair wind, catching special kinds of fish, etc. He also studies the history of the joint family, including its genealogy. In all these he is instructed by the old men of his group.

From thirty-five on, the man should be a complete member of the community and ready himself to educate the young in all respects. However, the older the man, the more likely he is thought to have the traditions in their purest form.

My information about the upbringing of girls is more fragmentary, partly because I was at the time less interested, and partly because it was much more difficult for me to secure.

The same periods will cover the life of children of either sex. The first, from birth to three years, is practically identical in both cases. The girl, like the boy, is always in the closest contact with the mother, rarely leaving her for more than a few hours. Fathers take the same pleasure in nursing baby girls and baby boys. The habits of cleanliness are also taught as much by the father as the mother at first, though as the girl gets older it is the mother who carries her to the beach.

In the next period differences develop. To begin with, girls are rarely educated by anyone outside their own dwelling-houses, so that, unlike boys, they are not invited to the house of an older relative. A girl is instructed almost entirely by her parents, the mother in particular; or, if she is dead or incapacitated, by some other woman of the house who stands in the relationship of maternal aunt. In this second period, the things that she is taught are the same as if she were a boy, the essential taboos, how to run errands and, generally, to be useful. Toward the end of the time she makes friends with the other little girls round about, so that she is ready to join the playmate groups of girls in the third period, from eight to puberty. These groups teach the girl the same kind of things the boy learns—the social qualities, that once outside the house she is no more important than other children, and so on.

Apart from the group, the girl learns some things at home. Her mother teaches her the names of the various trees which it is useful for her to know, the three varieties of pandanus palm, one used for thatch leaves, one for mat leaves, and one which has an edible fruit, the hibiscus tree whose bark is used for fiber, the ngaku fruit tree and the rest.

Little girls are very rarely made to look after the younger children for any length of time. Sometimes if the mother is busy, an elder daughter

is told to mind the baby, but this is only for an hour at most. There are exceptions to this rule, of course, and a few lazy women will for hours together entrust the baby to a child who is little more than a baby herself. Generally, however, little girls regard it as a privilege to nurse their younger brothers and sisters. Apart from minding the baby, girls also learn to be useful in the house. They are always sent to the sea to wash the cooking utensils. They also have to bury the sweepings from the floor in the beach sand, to look after the flares at night, and similar little tasks, none of which require any skill. The time occupied by all of them is not nearly as much as that occupied in playing.

During this third period the women of the house teach the little girl to dance. First they do a step and the girl imitates them. In this way she learns a whole dance. Then the women beat time for her while she practices, so that by the time she reaches puberty she is mistress of all the more simple steps. Finally she has her thighs tattooed and the fourth period begins.

This lasts till the girl is eighteen. She now goes off to the gardens for the first time and is taught by her mother how to cultivate the taro. As she grows bigger she has to do her share of carrying, and a special basket of roots is allotted to her. The elder women of the house instruct her how to scrape off the skin of the taro, and how to cook it and the other articles of food, taro pudding and fish. Practically all the coconuts which are grated to make oil, either for application to the skin or for cooking, are prepared by the young girls. If there are two or three in one house, one sits at the grating-stool until she is tired, and then the sister will take her place for a time until she, too, is tired. Girls are also taken by their mothers when they go to the reef for shell fish. In this way they learn which are edible and which are not, and the most likely place to look for the different species. They are shown how to make the various leaves into necklaces and ornaments so that they can appear at their best at the dance. During this time, too, they are told of the taboos which have not up to the present concerned them.

The playmate group is still fairly important but it has been extended to include many other girls who themselves belonged to smaller groups in their childhood. These groups invent love songs to sing on certain occasions and it is they who dance together at night. Sometimes a group of girls takes over a house entirely for their own use. Here they practise new dances and try out new songs.

Young girls are married when they are about eighteen. If they cannot secure a husband they usually become prostitutes. It is not until after

marriage that a girl is shown how to weave pandanus leaf mats. Coconut leaf mats are very easy to make, and the girl is given instruction by her mother when she is quite young. The finer mats, together with belts, hats, pillows, etc., are much more difficult, and it takes the girl some time before she is able to turn out something that is really good. Most girls have a big mat begun if not finished by the time their first child is born.

Women only learn the pedigrees if they are sufficiently interested. Even then, they pick them up through hearing the men talk about them rather than through any instruction they themselves receive. The same is also true of the finer points of mythology.

The education of both sexes, then, goes on until the person is a parent with a family, the eldest members of which are usually getting on for twelve or thirteen. First of all the mother is the most important person, and for the girl she always remains so. When the child emerges from infancy and early childhood, groups of other children become an important educational factor. Once the child is past puberty, with the boy, the father or the head of the cooperating group is most important. With the girl it is the mother or one of the women who live in the same dwelling.

UNIVERSITY OF SYDNEY,
SYDNEY, AUSTRALIA

ACCORDING to Dr. George Grant MacCurdy of Yale University during the Aurignacian epoch, the love of ornament developed in conjunction with the decorative arts in general, as is witnessed by the use of bone and ivory pendants as well as perforated shells and animal teeth which served as necklaces, pendants and trimmings.

No field in the whole domain of pre-historic archeology has attracted more attention than that of Quaternary Art; and rightly so, since its appearance marks a distinct epoch in mental evolution.

The fine arts and the love of ornament seem to have developed at the same time, for both in graves and elsewhere are found bone and ivory pendants as well as perforated shells and animal teeth that were evidently used as necklaces and otherwise.

While these ornaments were extremely crude, consisting, as they did at first, of marine snail shells, teeth, or even fish bones, they were replaced later, in part, by beads made from materials which were easy to work; and still later beads of glass were used. This is known because they persist in the graves along with human skeletons; but we are ignorant of the extent to which flowers, fruit, and foliage may have been used for ornamentation, for they are perishable and leave no record. However, we may infer their use is as old, for earliest man was a forest-dwelling creature, and it would be only natural that he should select flowers, fruit, and foliage of the plants in his environment. If this is so, then flower leis may date 17,000 years ago.

Some writers would explain ornamentation as an outgrowth of superstition; that ornaments were used first as charms to ward off evil spirits. Assuming this, it is easy to understand how, in later civilization, the use of necklaces, leis of flowers, fruit, and feathers found their way into the ceremonies for the appeasing or honoring of gods.

When the Polynesians came out on the islands of the Pacific, they were released from the persecution of their bitterest enemies. In this new environment, a feeling of trust and friendliness of man for man developed, which gave rise to the friendly character trait of the Polynesian, well known to those of us who have lived among them and enjoyed their hospitality. This isolation and freedom led to a closer bond between them as human beings and the formation of friendships. From this, we can readily understand how the idea of conferring honor, typified by the ceremony of be-

¹ Presented at the opening session of the Hawaiian Academy of Science on "Lei Day," May 1, 1930.

stowing leis upon the gods, was extended to the giving of leis as a special mark of honor to friends.

It has been well established in traditions and literature, sculpture and art that numerous and various types of leis and wreaths had been evolved on the continent from which the Polynesians came. It is quite expectable that they would have brought with them the cherished memory of these different kinds of leis, and although they did not have the same plants as on the mainland nor, except in rare instances, did they carry them along into Polynesia as was done for their indispensable food plants, they undoubtedly searched for each type of leis and in most cases found a plant so closely resembling the one on the continent that they were able to reconstruct leis more or less like those of their homeland. Evidently they also made quite new and distinct combinations with the new plants.

Time will not permit the discussion of all the different lei types, but we may select a few for brief consideration. Broadly speaking, leis may be divided into two main groups: non-perishable, i.e., leis made of bones, teeth, stones, minerals, glass, shells, seeds, feathers, shavings or pieces of wood; perishable, i.e., leis made of flowers, fruits, and leaves.

Those of the non-perishable type were little developed in connection with friendship or ornamentation in Polynesia, except in the low coral islands, where shell specimens are prominent as friendship leis. In the Tuamotus, shell leis are remarkably developed. In the other island groups of Polynesia, plants serve as the chief leis of friendship; of these many types exist. Without discussing the art or purpose of these different kinds of leis, we shall rather select a few and trace their origin. In estimating their antiquity we may use, in part, the principle of "age and area" as applied by Willis to plant distribution, namely, that the older types extend over a larger area than the younger. A statistical analysis now in progress shows that the Polynesian leis are primarily based on fragrance; a very few, on color, and these are not strictly friendship leis. Only one lei is based on movement.

The maile may be considered one of the oldest of all leis. The central idea of Asiatic origin is lost in the mists of antiquity, but we may safely assume that the original lei was made of elliptical leaves having a fragrant odor like the maile. In Polynesia, this type of lei is made of *Alyxia stellata* and *Alyxia olivaeformis* according to the island on which the lei is made, *A. olivaeformis* being on some islands and *A. stellata* on others. Therefore we find the area of this lei type extending from Malaya to the easternmost part of Polynesia, and from the Society islands north to Hawaii; but this does not appear to be the end, for the laurel wreath may have been developed

from the same center. Thus the idea extends from the tropics to the Mediterranean region and north temperate zone. It is to be noted that the Roman wreath was not one of friendship but one of honor. The shape, size, texture, luster, and fragrance of the laurel leaf resemble that of the maile. Might not the Polynesians have first selected it to carry out the idea of honor in friendship?

The second very distinct type of lei is made from the fruits of the pandanus strung in various ways. This type of lei is made in nearly every part of Polynesia covering the eastward range of the pandanus and may therefore be classed as strictly Polynesian. It is difficult to trace its origin westward through Malaya and tropical Asia, unless it has some vague connection with the stringing of dried fruits for use in temple worship as practiced in some parts of India.

Of considerable interest in connection with the pandanus form is a local one confined to the Marquesas and made from the "eyes" of the pineapple. These, when cut out of the fruit aggregate, resemble the fruits of the pandanus in shape and are more fragrant. Beyond question the hei haa hoka, as this lei is called by the Marquesans, is an outgrowth of the pandanus lei, or hei haa of the Marquesas. This is indicated not only by the name haa, meaning pandanus, applied to the pineapple lei, but also from the fact that the Marquesans classified the pineapple with the pandanus.

That the pandanus lei is old in Polynesia is shown by the extensive area it covers and by the development of the pineapple lei from it.

A fourth Polynesian type, which is of wide distribution, is made of white, fragrant, tubular flowers, usually strung end to end. As this form covers far greater area than the range of any single species of plant with this type of flower, it is constructed of the flowers of several species depending upon the island group.

It may have had its origin in southeastern Asia by the use of jasmine; for many species of the jasmine occur there as in India, where it is highly prized for leis and temple worship. In Tahiti, the tiare (*Gardenia tahitensis*) is used, doubtless because the tiare flower resembles the jasmine in essential respects and was selected to take the place of the jasmine, because the jasmine did not occur there. Eastward in the Marquesas, the pua (*Pagraea Berteriana*) was used, because neither jasmine nor *Gardenia* are indigenous to those islands. While the flower of the pua is larger, it is like the jasmine in many respects. This type of lei does not seem to have been at all prominent in Hawaii. However, the large area covered by the jasmine-*Gardenia*-pua type indicates considerable age.

Another ancient Polynesian lei is the ginger lei made of the creamy-

yellow spicy flowers of *Hedychium flavum*. Its great age is indicated by its occurrence throughout Polynesia wherever the plant will grow. The fondness of the Polynesians for this type is clearly indicated by its being the only plant which they carried with them to every part of Polynesia for the making of leis.

An analysis of the different Hawaiian leis shows that they are Polynesian rather than Hawaiian in their conception. However, the ilima lei, based on color, is strictly Hawaiian, for so far as we have been able to trace, it is distinct from other Polynesian leis. Yet it should be noted that the wearing of the ilima lei was restricted to the upper and ruling castes, who in turn were the learned classes. In India, yellow is symbolic of religion and learning. Yellow marigolds are still used in temple worship. In China, yellow is the color of royalty.

The Hawaiian olapa (*Cheirodendron*) lei, a foliage type of lei, is of special interest from the fact that it is esteemed, not on account of the fragrance of its flowers or foliage, but because of the quivering movement of the leaves. Therefore, the leading aesthetic quality is based on movement; not on odor or color. Hitherto this has been considered a strictly Hawaiian lei as *Cheirodendron* has been regarded as endemic to Hawaii. But not so: a new species of this genus was discovered by us in the Marquesas islands and named and described by Dr. Brown as *Cheirodendron marquisense*. In the Marquesas it is known as pimata and the lei made from it is one of the most highly esteemed of all. Here, as in Hawaii, it is the quivering movement of the leaves that appeals so strongly to the aesthetic sense of the natives and other cultured races.

It becomes clear, therefore, that the impulse which leads the Polynesian to construct leis of olapa and pimata is unquestionably deeply rooted in human culture and difficult of explanation; but it is more clearly understood by those who have seen the pimata of the Marquesas, the olapa of Hawaii, and the so-called quaking aspen of the continent. The green, shining, sharp-pointed, ovate leaflets of the *Cheirodendron*, and the leaves of the aspen are alike attached by a slender compressed petiolule, or petiole, which permits great freedom of movement. In the slightest breeze they tremble or quiver, creating a peculiar sensation of coolness and animation. This concept is a complex one, in which, however, it is the peculiar qualities of movement which appeal so strongly to the mind. For convenience, we may term this the *motive concept*, and there can be no doubt that it dates far back and is deeply seated in human culture. With the Marquesans, it found its expression in the pimata lei; over two thousand miles distant it found its expression in the olapa lei of Hawaii. So far we have been unable

to trace it farther in Polynesia. But in English literature we find it again appearing in the poetic references to the leaves of the trembling aspen (*Populus tremula*). From the fact that it appears early in written language, it is clear it must have existed in the British traditions long before it appeared in the poetry, and it is only reasonable to suppose it had a common origin with the motive concept which found expression in the olapa lei and the pimata lei of Polynesia. The poetic references in American literature to the American aspen (*Populus tremuloides*) are, of course, of comparatively recent origin and obviously cognate with the much older expressions in English literature.

In closing, I wish to thank both the native Polynesians and those from other countries who, during the ten years I have been collecting the data for the manuscript, of which this is but a fragment, have so generously aided me. It has given me great pleasure to go with them in thought into the customs of their native lands; and, in the broadening effect of this study, I have come more and more to realize that although "East is East and West is West" yet the twain have found a common meeting-ground in the circle of the lei.

BERNICE P. BISHOP MUSEUM,
HONOLULU, HAWAII

NOAH WEBSTER, THE
ARCHAEOLOGIST

By G. HUBERT SMITH

NOAH WEBSTER'S reputation as a lexicographer is so firmly established that it may frequently be overlooked that he did notable work in other fields. His mind was one to which all knowledge was of importance and concern, whether philology or education, political economy or religion. It is probably not generally known that at one time he was interested in archaeology; his comments on discoveries on the Muskingum river in Ohio partake something of that quality which marks many of his ideas on other subjects—their being ahead of their time. Whatever is to be believed about man's emigration to America, Webster's suggestions have a modern ring.

In the years 1787 and 1788 Webster edited the *American Magazine*, published at New York. In December, 1787, and January and February, 1788, he printed three letters addressed to Dr. Ezra Stiles, the president of Yale, Webster's alma mater, on the subject of the discoveries on the Muskingum.¹ The thesis which Webster maintained is explained in his note on the letter here given. This letter, the third, was the only one he wished to preserve in 1790, when he came to publish his collected essays.² Webster had by this time relinquished his earlier contention (which now seems a bit fantastic—like many another theory of the mounds), based upon the incorrect spelling of a Spanish word, but one cannot refrain from commenting upon the distance he had been led astray—he the orthographer and orthoepist.

Remarks on the Method of Burying the Dead among the Natives of this Country; compared with that among the ancient Britons. Being an Extract of a Letter to the Rev. Dr. Stiles, President of Yale College, dated New York, Jan. 20, 1788.

[Note. I had embraced the idea, that the remarkable fortifications on the Muskingum might be justly ascribed to the Spaniards, under Ferdinand de Soto, who penetrated into Florida, about the year 1540, which opinion I endeavored to maintain as probably well founded, and wrote three or four letters on the subject to Dr. Stiles, which were published in 1789.³ It is now very clear that my opinion was *not* well

¹ The *American Magazine*, no. 1: 15-19, Dec. 1787; no. 2: 87-93, Jan. 1788; no. 3: 146-56, Feb. 1788. These letters were answered by Dr. Stiles in the same periodical, no. 4: 246-7, March 1788; and no. 5: 291-4, April, 1788; to which Webster replied in no. 8: 537-41, July, 1788. The three original letters of Webster's were reprinted in 1789 and 1790 in Mathew Carey's well-known *American Museum*, 6: 26-30, 136-41, 232-4, 7: 323-8.

² Noah Webster. *A Collection of Essays and Fugitive Writings. On Moral, Historical, Political and Literary Subjects*. Boston, 1790. Letter 3 is reprinted, pp. 205-16, as no. 16 of the essays. As the title and the letter which follows would indicate, the book was printed with some of Webster's modified spellings.

³ First printed in 1787 and 1788, as has been noted.

founded; but that *Chicaca*, which I had supposed to be Muskingum, ought to have been written *Chicaca*, with a cedilla, as it is in the original Spanish; and pronounced *Chickesaw*. This determines the place of Soto's winter quarters, the second year after landing, to be in the territories of the present *Chickesaws*. Those letters, therefore, are not worth republishing, but the following extract, on a different subject, may be considered as worthy of preservation.]

But how shall we account for the mounts, caves, graves, &c. and for the contents, which evince the existence of the custom of burning the dead or their bones, can these be ascribed to the Spaniards? I presume, Sir, you will be of the opinion they cannot. Capt. Heart says,* these graves are small mounts of earth, from some of which human bones have been taken, in one were found bones in the natural position of a man, buried nearly east and west, and a quantity of ising glass on his breast, in other graves, the bones were irregular, some calcined by fire, others burnt only to a certain degree, so as to render them more durable, in others the mouldered bones retain their shape, without any substance; others are partly rotten and partly the remains of decayed bones; in most of the graves were found stones evidently burnt, pieces of charcoal, Indian arrows and pieces of earthen ware, which appeared to be a composition of shells and cement.

That these mounts and graves are the works of the native Indians, is very evident, for such small mounts are scattered over every part of North America. "It was customary with the Indians of the West Jersey," says Mr. Smith,⁴ page 137, "when they buried the dead, to put family utensils, bows and arrows, and sometimes wampum into the grave, as tokens of their affection. When a person of note died far from the place of his own residence, they would carry his bones to be buried there. They washed and perfumed the dead, painted the face, and followed singly, left the dead in a sitting posture, and covered the grave pyramidically. They were very curious in preserving and repairing the graves of their dead, and pensively visited them."

It is said by the English, who are best acquainted with the manners of the natives, that they had a custom of collecting, at certain stated periods, all the bones of their deceased friends, and burying them in some common grave. Over these cemeteries or general repositories of the dead, were erected those vast heaps of earth or mounts, similar to those which are called in England *barrows*, and which are discovered in every part of the United States.

The Indians seem to have had two methods of burying the dead; one was, to deposit one body (or at most but a small number of bodies) in a place, and cover it with stones, thrown together in a careless manner. The pile thus formed would naturally be nearly circular, but those piles that are discovered are something oval. In the neighborhood of my father's house, about seven miles from Hartford, on the public road to Farmington, there is one of those *Carrnedds* or heaps of stone. I often

* *Columbian Magazine*, 1: 425-427, May, 1787. [Webster's note.] Account of Some Remains of Ancient Works, on the Muskingum, with a Plan of these Works.

⁴ Samuel Smith, *The History of the Colony of Nova-Caesaria, or New-Jersey . . . Burlington, in New-Jersey, 1765.* (Page for page reproduction of 1877, ed. by William S. Sharp.)

passed by it in the early part of my youth, but never measured its circumference or examined its contents. My present opinion is, that its circumference is about twenty five feet. The inhabitants in the neighborhood report, as a tradition received from the natives, that an Indian was buried there, and that it is the custom for every Indian that passes by to cast a stone upon the heap. This custom I have never seen practised, but have no doubt of its existence; as it is confirmed by the general testimony of the first American settlers.⁵

The other mode of burying the dead, was to deposit a vast number of bodies, or the bones which were taken from the single scattered graves, in a common cemetery, and over them raise vast *tumuli* or barrows, such as the mount at Muskingum, which is 390 feet in circumference, and 50 feet high. The best account of these cemeteries may be found in Mr. Jefferson's Notes on Virginia, which will appear the most satisfactory to the reader in his own words. . . .⁶

From this account of Mr. Jefferson, to whose industry and talents the sciences and his country will ever be indebted, we may fairly conclude that the mounts at Muskingum are the work of the native Indians. It is however necessary to notice two or three particulars, in the appearance of those at Muskingum, which are not discovered (or not mentioned by Mr. Jefferson) in the structure of that which he examined. These are the ising glass, the earthen ware, the charcoal, and the calcination of the bones by fire. As to the first it is well known that the ising glass is found only in particular parts of America, and the savages in other parts could not obtain it. Mr. Jefferson mentions no discovery of earthen ware, but it was used by the Indians in every part of America. The piece you once shewed me, sir, is a specimen of what is found wherever there has been an Indian town. Pieces of it are dug up frequently in the meadows on Connecticut river. It appears to be formed of pure clay, or of shells and cement, hardened by fire, and as we might naturally suppose, without glazing. By sections of vessels which remain, it is evident they were wrought with great ingenuity, and into beautiful and convenient forms.

The charcoal and calcination of some bones are a proof that there has existed, among the savages of America, a custom of burning the dead, or their bones, after the dissolution of the flesh. It does not appear that this custom was general but it is not at all surprizing to find that such a practise has existed in this country; since it has been frequent among the uncivilized nations on the eastern continent.

I am sensible, sir, that you have entertained an opinion that the story of Madoc, the Welch Prince, may be true, and that it is possible the fortifications at Muskin-

⁵ Webster here gives information, in a footnote, concerning a practical joke among the "Anglo-Americans" in the vicinity, of making strangers pull off their hats as they pass the spot. This, he says, "is a proof that the aborigines paid a respect to these rude monuments, and in ridicule of that respect, probably, originated the vulgar practice of the English, which exists to this day."

⁶ Webster here quotes at length from Thomas Jefferson's Notes on the State of Virginia, 103-106, Philadelphia, 1788 [1787]. (The Writings of Thomas Jefferson, collected and edited by Paul Leicester Ford, New York, 1894, 3: 198-205.) This passage also appeared in Feb. 1788 in the Columbian Magazine, ed. Francis Hopkinson, II, 75-7.

gum may be the work of his colony. Of the truth of this conclusion, there is perhaps no direct evidence, and yet collateral evidence may be obtained, that it is not chimerical. There is such a surprizing affinity between the Indian mounts and the barrows or cemetaries which are remaining in England, but particularly in Wales and Anglesey, the last retreat of the original Britons, that we can hardly resolve it into a common principle of analogy that subsists between nations in the same stage of society; but incredulity itself will acknowledge the probability, that the primitiv inhabitants of Britain and America had a common stock from which they were derived, long since the age of the first parent: Not that I believe North America to be peopled as late as the twelfth century, the period of Madoc's migration, but supposing America to have been settled two or three thousand years before that period, a subsequent colony might pass the Atlantic and bring the Roman improvements in fortification . . .⁷

It is said by authors that mounts and piles of stones are found likewise in Denmark and Sweden, but in construction they differ from those found in Britain. Yet from the foregoing descriptions, taken from authentic testimony, it appears, that between the barrows in England and America, the manner of constructing them in both, and the purposes to which they were applied, there is an analogy, rarely to be traced in works of such consequence, among nations whose intercourse ceased at Babel; an analogy that we could hardly suppose would exist among nations descended from different stocks. This analogy, however, without better evidence, will not demonstrate the direct descent of the Indians from the ancient Celts or Britons. But as all primitiv inhabitants of the west of Europe were evidently of the same stock, it is natural to suppose they might pass from Norway to Iceland, from Iceland to Greenland, and from thence to Labrador; and thus the North American savages may claim a common origin with the primitiv Britons and Celts. This supposition has some foundation, and is by no means obviated by Cook's late discoveries in the Pacific ocean.*

These are however but conjectures. Future discoveries may throw more light upon these subjects. At present, a few facts only can be collected to amuse a contemplativ mind, and perhaps lead to inquiries which will result in a satisfactory account of the first peopling of America, and of the few remains of antiquity which it affords.

On the appearance (which has been noted) of his letters in the journal, *American Museum*, Webster wrote to the editor from Hartford, September

⁷ Webster here gives the evidences of what he considers parallel cultures in the British Isles.

* Mons. Mallet, in his *Northern Antiquities*, has produced unquestionable testimony, from the *Chronicles of Iceland* and others [sic] histories of the north, that the American continent was discovered about the tenth century; and the esquimaux are clearly of the same race as the Greenlanders. [Webster's note.] Paul Henri Mallet, *Northern Antiquities: or, A Description of the Manners, Customs, Religions, and Laws of the Ancient Danes, and other Northern Nations* . . . Translated [by Thomas Percy] . . . 2 vols. London, 1770.

3, 1789, expressing regret that the first two had been reprinted, since they no longer represented his opinions. The concluding paragraph of this short letter may appropriately follow the foregoing.

What will the public say of the following opinions, that the Southern Indians, in Mexico and Peru, are descended from the Carthaginians or other Mediterranean nations, who found their way to the continent at a very early period, and spread themselves over North as well as South America—that these nations had become more civilized, than the present northern Indians, tho' not acquainted with the use of iron—that at a late period of time, perhaps four or five centuries ago, the Siberian Tartars found their way to the North West parts of this country, and pushed their settlements till they met the southern and more ancient settlers—that, accustomed to a colder climate and more active and hardy life, they were the Goths and Vandals of North America, and drove the more ancient settlers from their territory—that in the contest between these different tribes or races of men, were constituted the numerous fortifications discovered on the Ohio, the northern lomes [*sic*], and in all parts of the western country. What facts may be found to support this idea, must be left to further investigation.⁸

Finally, Webster answered the various replies to his papers in the *Columbian Magazine* in November, 1788.⁹ In this communication he says:

The gentleman who first started the hypothesis, that these fortifications were constructed by De Soto, was Dr. Franklin; but he offered it merely as a subject of investigation; or a probable solution of a very difficult question.

Webster concludes with pleasing grace:

But whatever may be the result of candid enquiry, the writer who espoused the opinion that the works at Muskingum might be ascribed to Soto, will receive great pleasure in seeing any investigation which shall solve the difficulties that attend this subject. N. W.

UNIVERSITY OF MINNESOTA,
MINNEAPOLIS, MINNESOTA

⁸ *Am. Mus.*, 8: 11-12. It should be noted that Webster was answered at length in an article which appeared in the *Columbian Magazine* for Sept. 1788 (2: 477-89): "Observations on the travels and Transactions of Ferdinando de Soto, in Florida; intended to prove that the ancient fortifications, discovered on the banks of the Ohio, and other inland parts of America, were not constructed by him." This article may have been written by Francis Hopkinson, then (?) editor of the magazine. We know that at this time Hopkinson and Webster were acquainted with each other, and that Hopkinson lent Webster Jefferson's *Notes*. (*Notes on the Life of Noah Webster*, compiled by Emily Ellsworth Fowler Ford, edited by Emily Ellsworth Ford Skeel, New York, 1912, 1: 218, Aug. 4, 5, 1787.)

⁹ 2: 645-6.

BOOK REVIEWS

METHODS AND PRINCIPLES

L'Art primitif. G. H. LUQUET. (Paris: Encyclopedie Scientifique, Gaston Doin et Cie., 8 Place de l'Odeon, 1930. 270 pp , 142 figures. 30 francs)

The book is divided into an introduction, three chapters, and a conclusion with a bibliography of 233 titles, to which reference is made in the text, not in footnotes.

Chapter 1 is devoted to the Beginnings of Figured Art. Because the modern child, in spite of his surroundings and heredity, appears to rediscover art, M. Luquet assumes that he goes through the same phases as the first artist. The discovery of the ability to make marks is more or less accidental; recognizing one's tracks in the snow, seeing hand and finger marks in clay or mud after a fall or careless drawing of a sharp stone along a wall. These accidental markings are followed by meaningless intentional ones. Then comes accidental recognition that some of these intentional lines resemble some known shape or object. This recognizable image is next added to with intent to improve its resemblance. Finally the individual becomes fully conscious of his graphic ability and produces recognizable likenesses at will.

Another "Beginning" is based on mechanical processes such as reproducing the hand on a wall either by covering it with coloring matter and "printing" the hand or by placing the hand on some surface and outlining it. The next step is that of adding to the mechanically produced outline, as finger nails to the fingers. Still another source of design in art is that of adding to or completing accidental likenesses in nature.

Children early recognize the resemblance between pictures and real objects but at first attribute the same qualities to the picture as to the object, and the same realism to their own drawings as to the more skilled representations about them.

The second chapter discusses intellectual realism, first pointing out that visual realism in design is the resemblance to what the eye sees while intellectual realism is that which translates what one's intelligence is aware of. The former is primarily a possession of the civilized adult, the latter belongs to the primitive. Intellectual realism contains indicated elements which are not visible but which the artist deems of interest. Many elements registered by the photographic eye are left out of a drawing, as arms and body of a human being, roofs to houses, etc., yet the child artist sees the complete object. Another phase of intellectual realism combines several aspects in a single picture of an object, that is, part may be shown in profile, part in front view, three sides of a house together with the inside (transparency) shown at once, showing of parts actually not visible from the angle at which the object is viewed and other violations of visual realism. These violations of visual realism are due to the artist's belief in the importance of certain elements and the unimportance of those omitted.

The third chapter discusses types of primitive graphic narration. The Epinal type consists of the juxtaposition of several separate pictures, each a complete unit serving as a representation of a single episode in the story depicted. The "type successif" unites in one picture elements which could not be viewed at the same time but must be viewed successively. Of this "type successif" there are two varieties. One lacks repetition, that is, any element constant to several moments of the picture is not repeated, even though it changes its position. Thus, a boy arrested by officers and taken to jail is figured once though he is supposed present with the pictured officers and in the pictured jail. The other variety shows repetition. In this some elements, especially principal actors, are repeated: a boy climbing a mountain, e.g., is drawn at the base of the mountain and again at the summit.

Examples are cited profusely throughout the book from the five continents down through the ages. Modern, historical, prehistorical, ethnological, and child psychology data are abundantly represented but thoroughly intermingled beyond hope of use for reference by the reader. The author is much more of a psychologist than a student of prehistoric and modern non-civilized peoples. His observations, especially in chapters 2 and 3, are those of a sophisticated, civilized, intellectual who attempts to guess at what the primitive artist means instead of attempting to see with artist's eyes.

In the present writer's opinion much of M. Luquet's so-called intellectual realism is really visual realism, that is, the primitive artist draws what he actually sees as well as he is able. Anyone who divorces himself of his sophistication for a moment will recognize that a human face at a little distance does look the way a child draws it,—as a round outline with spots where the eyes are, and a line each for the nose and mouth. I have watched an automobile coming toward me more than once when an accurate drawing of what I saw (not of what I knew I must be seeing) would look like a child's outline in "intellectual realism" for the author. Much of the "intellectual realism" which combines profile and face view is more likely lack of skill, lack of sophistication, and drawing from memory. I have just studied some of my own photographs of animals in the light of M. Luquet's discussion and find that there are many angles at which details mentioned by him as front view can be seen. Once recognize the real difficulty of the untrained and unsophisticated artist in representing what he actually sees in a true profile and much of M. Luquet's argument is lost. Or perhaps he has just confused his terms and should say that civilized man's visual realism represents what is seen with the cold analytical eye of reason and should be called intellectual realism, while the unsophisticated artist's so called intellectual realism is the unskilled representation of what his unreasoning eyes impressed on his memory.

ALONZO W. POND

Tod und Unsterblichkeit im Glauben der Naturvölker. K. TH. PREUSS. (Tübingen: J. C. B. Mohr, 1930. 36 pp. 1.80 Mk.)

This pamphlet is the somewhat expanded version of a lecture delivered in the Rautenstrauch-Joest Museum in Cologne. Accordingly it lays no claim to exhaus-

tiveness, but emphasizes certain points of view which in part deviate from traditional conceptions. Professor Preuss connects the primitive notion of death with that of procreation and interprets adolescence rites as designed to prolong life on this earth and to effect passage into the hereafter. The belief in survival is not linked with the animistic conception of a soul but antedates it, the visionary and dream experiences cited by Tylor being of secondary significance in this respect. Professor Preuss points out that survival is not equivalent to immortality and that the hereafter is often but vaguely pictured by savage tribes. A feature worthy of commendation is the emphasis on the non-rationalistic nature of primitive faith.

R. H. LOWIE

The Family. DR. MÜLLER-LYER. Translated by F. W. STELLA BROWNE. (New York: Knopf, 1931. 406 pages.)

This translation of a work originally published in 1912 will be of interest mainly as a historical document. It contains no new points of view, and many old ones now discarded. The treatment is based on the assumption, or assertion, of phases of human development, and smacks strongly of the Lewis H. Morgan brew.

A portion of the book is devoted to an account of the status of the family in certain Western countries during the thirty or forty years preceding its original publication.

W. D. WALLIS

Evolution of Culture. JULIUS LIPPERT. Translated and edited by GEORGE PETER MURDOCK. (New York: Macmillan, 1931. \$5.00.)

Mr. Murdock believes that Julius Lippert has not received in this country the consistent recognition commensurate with his worth. Sumner and Keller among American scholars were influenced by this German of the late nineteenth century, and it is with Keller's encouragement that Mr. Murdock's translation has been undertaken. He has chosen what he believes is Lippert's most outstanding work, *Kulturgeschichte der Menschheit in ihrem organischen Aufbau* (2 vols., 1886-87). He has rendered into readable English only the most significant portions of a work whose involved German has been an obstacle to many American students. In addition he has verified and augmented the footnotes of the original. The value of the present work is much enhanced by an ample index and bibliography, by a critical and biographical introduction, and by five appendices which state clearly and concisely the present status of the controversies on primitive promiscuity, the priority of mother right, the origin of exogamy, the levirate, and the couvade. As might be expected, the emphasis of the book is on stages of societal development.

Anthropology and historical sociology have now reached a point in their development when a stricter use of their phraseology is essential. Increasing data have revealed long ago the fallacies of Westernmark's generalizations, as well as those of Morgan. There is need to examine the concepts and the blanket terms used to cover them as well as the schemes themselves. The term "family" has been shown to be a highly variable concept. Promiscuity is used with both organic and super-

organic connotations. Hypothetical reconstructions of origins have not been abandoned. Stages of development as logical classifications are used still by scholars who have repudiated social evolution without apparently recognizing the sterility of such a procedure. In the light of the confusion which has been engendered by innumerable social schemes, too often deductive and subjective, any work has real value which helps to reveal the history of these confusions. Lippert has erred often but he has shown a fertility of solutions which may be stimulating in future approaches to social phenomena.

CORA DU BOIS

Tagungsberichte der Gesellschaft für Völkerkunde. (Report of the first meeting of 1929 in Leipzig edited by the Committee Leipzig, 1930.)

The 1929 report of the German anthropological society's meeting in Leipzig is highly interesting. A letter propounding four main questions was sent to various members. Briefly the questions were: Is the goal of anthropology culture or man (in his various aspects, spiritual, social, physical); What is the direction of its researches (cultural or human history, cultural or human development, etc.); What is its proper subject matter; What is its relation to the allied sciences? The written replies are printed in the report. From the answers five points were chosen for special consideration during the meeting. The discussions which they stimulated are also included in the report. The opinions of scholars like Krause, Schmidt, Koppers, Lips, Karutz, and others are revealing of the divergence of views in German anthropology. A summary of the opinions would be of excessive length. However there should not be omitted the excellent exposition of the Kulturkreise school and the criticism of it by Boas.

The salient points made in a joint paper by Schmidt and Koppers are the following. Anthropology is historical in its conception and essence. The problem of ethnology is the reconstruction of the cultural history of primitive people, and although this may not be its only goal, it is its necessary ground work. Ethnologic history may be reconstructed inferentially by tracing the similarities of form (*Formkriterium*). A number of similarities give the so-called quantity criterion. Where the form and quantity criteria can be established between any two peoples, cultural connections may be assumed. However in establishing the criterion of form the principle of limited possibilities must be considered. Groups of traits or culture complexes are assumed to have dispersed together. Kulturkreise may be overlaid by others. This produces mixed cultures. The Kulturkreise school does not subscribe to an a priori assumption that all culture has a single point of origin, but further research may reveal this situation to have been the case. From this it follows that new inventions within a culture are considered possible but they are excrescences too incidental to obscure the general cultural sub-stratum.

In the course of their discussion Schmidt and Koppers accused Boas and other ethnologists of inconsistency in that they "admitted within our own Kulturkreise that the same or similar cultural phenomena may be traced to different parts of the

world from a single point of origin, but at the same time they deny that this holds for primitive peoples." Professor Boas in a written communication meets the objections and makes the following comments. He points to his works to prove his interest in historical contacts.

However, I refuse to accept as equally old the historically connected phenomena which occur so frequently in the *Kulturkreise* school. . . . Every culture has its dynamic process which may, but need not necessarily, lead to similar cultures developing the same or similar thought patterns. . . . My objection to the *Kulturkreise* school rests on the mechanical application of the form and quantity concepts. If the dynamic conditions for the development of a group of forms are demonstrable, the form and quantity proof loses its value. If, for example, we know that the conditions which influence the individual are easily transferred to the social group to which he belongs, so that groups become similar not only in principle but also in specific form; if we know in addition that an inner relationship between men and animals is psychologically comprehensible, then the distribution of totemism, without specifying the concept, no longer has historical worth.

Boas then goes on to stress the principle of convergence which he claims the *Kulturkreise* school ignores, despite the fact that it has been demonstrated to be valid time and again in North America. He concludes:

The *Kulturkreise* school . . . directs particular energy against evolution (*Evolution*). However does it not enter through the back door in its system of development (*Entwicklung*)? I believe that the progress of our knowledge rests on a stricter historical method than appears to me to rule in the *Kulturkreise* school, and upon a prudent study of the dynamic processes of cultural forms in their own inner development.

To these comments of Professor Boas, Herr Koppers answered (1) that the Boas historical approach cannot be denied but that it lacks, like that of all American ethnologists, a wide historical orientation, (2) that to ascribe equal age to all associated phenomena in a *Kulturkreise* rests upon a misunderstanding; (3) that cases of parallelism may result from comparing historically connected cultures; (4) that Boas himself has stated the survival values of certain traits, which is an assumption he questions in the *Kulturkreise* school; and (5) that development (*Entwicklung*) shall not enter through the back door but through the front one, only it must be an objective and actual development of mankind as opposed to an artificial and fictitious one.

The exposition of the two approaches is more detailed than this review indicates. We see plainly that Schmidt and Koppers stress historical reconstruction almost exclusively. Boas believes that cultural dynamics is the more fundamental problem. However when Boas does concern himself with historical reconstruction he is more particularistic and strictly inductive. Both sides when they deal with similarities (and this is the chief engrossment of the *Kulturkreise* school) insist upon a strict examination of each case in its own right, but the American anthropologists believe similarities to be more often apparent than real in a genetic sense.

As an anticlimax both to the publication and the review it must be stated that the report concludes with three summaries: (1) the German-Indonesian expedition

of 1926-1929 by von Eickstedt; (2) archaeological studies and observations in Guatemala in 1925-1929 by Termer; and (3) the Leipzig Liberian expedition of 1928-1929 by Germann. To speak of these accounts as anticlimactic is perhaps unjust. They are concise illustrated reports which are well worth reading.

CORA DU BOIS

The Mothers; the Matriarchal Theory of Social Origins ROBERT BRIFFAULT. (New York: The Macmillan Co., 1931. viii, 319 pp. \$4.00.)

This one-volume edition,¹ Mr. Briffault explains in his preface, is not merely an abridgment but in some measure an independent work setting forth his main thesis. That thesis is expressed in the subtitle and is argued in defiance of modern anthropological theory, for which the author professes little respect. Being a clever writer with a marked aptitude for smart phrases, he has achieved a readable book. But having little acquaintance with what professional anthropologists really think, no discrimination in the use of source material, and only vague notions as to ethnographic relations and specializations, Mr. Briffault is not likely to produce a deep impression. Decades after John Fiske one is not likely to find the theory illuminating that prolonged infancy has been important in human evolution; and the revelation that primitive pottery is usually made by women will not astound readers of Laufer or Otis T. Mason.

Oddly enough, Mr. Briffault commits precisely the same type of blunder as his pet foe, Professor Westermarck. He culls from the literature sentences he does not understand and uses them to clinch a point. When he wants to prove that savages are chiefless, he asserts:

Among the Blackfeet, chiefs are described as occupying the position of beggars (p. 183).

Anyone who knows Plains culture can guess what this might mean, but certainly neither Mr. Briffault nor his unfortunate lay readers can get any worthwhile meaning from this isolated statement. Again, we find the following gem:

Among the Aleuts, children of ten have already become hunters and not infrequently keep a wife. At the same age a child among the Omahas has already learnt all that his father knows as a hunter and warrior . . . (p. 32).

Discriminating anthropologists have perhaps at times puzzled outsiders by reverently segregating E. B. Tylor from other authors ostensibly using the same "comparative" method. One reason ought to be clear. If Tylor wrote about the Blackfeet, he would know their general mode of life and would therefore not offer the absurd suggestion that their status corresponded to that of our beggars. For the same reason, he would not believe that an Omaha boy of ten could have mastered all the intricate rules of the chase and of warfare obtaining among his people. In other words, sentences picked from Heaven knows where were not to Tylor mere counters in an argument but were critically weighted with regard to cultural set-

¹ For a review of the three-volume work see *American Anthropologist*, 31: 146, 1929.

tings. Unlike Tylor, Mr. Briffault accepts whatever is grist for his mill; uses good, bad, and indifferent sources as though equally valid; and notwithstanding very wide browsing in ethnographical literature has probably not read thoroughly half a dozen standard monographs. Whenever he chooses, he ignores regional differences and makes absolute statements about the North American Indians or the Australians as if they were undifferentiated groups inhabiting tiny hamlets. His method sometimes yields quaint results. On page 50 the North American squaws are said to be

remarkable for their care and attachment to the men, continually watching over them with utmost solicitude and anxiety.

With some surprise, accordingly, the reader notes on page 153 that:

In all North American tribes there was scarcely any social intercourse between the men and the women; the sexes lived their lives separately.

Australian women are in one place described as "perfectly capable of taking care of themselves" and as exceeding the men in ferocity (p. 163) when Mr. Briffault wants to prove the physical prowess of savage femininity. When he has other irons in the fire, these viragos are being raped at every opportunity (p. 89), starved, beaten, and murdered (p. 206) by the males.

Science gains little by fostering a guild spirit, and in anthropology intelligent outsiders have sometimes given us descriptive monographs which the specialist views with admiration and envy. But so far as anthropological theory goes, worthwhile contributions can come only from those who have kept abreast of the methodological progress achieved during the last twenty years.

ROBERT H. LOWIE

AMERICA

The American Indian Frontier. WILLIAM CHRISTIE MACLEOD (New York: A. Knopf, 1928. The History of Civilization Series, no. 40. 598 pp.)

This is an account of the frontier contacts between the Indians and the whites, particularly in North America. By way of introduction, chapters are devoted to, respectively, the origin of the Indian, the economic and social life, the effects of alcohol, the effects of introduced diseases. The Plains area is treated at greater length than any other area. The volume is heavily documented. The theme will probably attract the historians rather than the Americanists, for the approach is fundamentally regional and historical rather than ethnological. The anthropologist does not care who destroyed the Indian or how the job was done.

WILSON D. WALLIS

Rock-Paintings of Northwest Cordoba. G. A. GARDNER with the collaboration of S. E. GARDNER (Oxford: Clarendon Press, 1931. xvi + 147 pp., 44 pls., 172 text figs.)

The province of Cordoba, one of the twenty-four political divisions, is situated near the center of the Argentine republic. The region is one of limited rainfall. There

is but scanty information regarding the peoples who inhabited this province at the time of the Spanish Conquest. At that time the greater part of the native tribes were called Comechingons. They hunted and fished, but were essentially an agricultural people.

The book embodies the results of over six years' investigation and study of the rock-paintings of the province in question. The rock-drawings of the Argentine republic in general may be divided into two classes: one consisting of figures, generally in outline only, produced by rubbing or by percussion; the other of figures painted on the rock surface. Those of the first class sometimes, though rarely, have the outlines filled in with paint. The incised figures usually occur on comparatively small isolated boulders, over which they are scattered aimlessly, while the painted figures are found on much larger surfaces: perpendicular faces of large rocks, rock-walls, and walls and roofs of natural shelters, where they often form connected groups.

The rock-drawings described in this volume are all of the painted class, with one exception. The author would apply the term petroglyph to all cut or pecked figures including those with outlines later traced with paint, restricting the term pictograph to those that are painted only. For etymological reasons, however, he does not care to apply the word pictograph to the paintings described by him (they are not picture writings), and prefers to call them simply rock-paintings.

As regards the significance of the rock-paintings, their age and authorship, the author shows commendable caution in drawing conclusions. He is sure of one thing: they were not done merely to pass the time away. Some of them are high up out of reach from the ground, or in positions very difficult of access. Many of the painted rock-shelters were used as dwelling places, and this might be advanced in the favor of the theory of home decoration. But the same argument which eliminates the pastime theory also militates against the home decoration theory.

There remains to be considered the possibility that some, at least, of the paintings may have had a religious or magical significance. Inaccessibility, obscurity of situation, superposition of figures, all would seem to favor the theory of religious or magical significance. That most of the animals depicted are useful ones gives added credibility to the idea that they were painted with the object of favorably influencing the fortunes of the chase. The author, however, hesitates to press too closely the analogies between the cave-paintings of Europe and the rock-paintings of South America.

The age of the paintings offers a problem difficult to solve. Those with representations of the horse can be assigned with considerable probability to the latter half of the sixteenth century. But figures of the horse are limited in numbers and to certain restricted areas. All the other paintings are obviously pre-Hispanic. How long the Indians had been painting in the rock shelters before the arrival of the Spaniards is a question to which no definite answer can be given. That the period was a comparatively long one is obvious from the degree of weathering and from the superposition of the figures.

In one shelter there is a mass of faded and almost obliterated figures with others

notably fresh painted over them. An added bit of evidence is afforded by a piece of rock which has fallen, carrying with it a portion of one of the more recent paintings. On the new surface thus laid bare, yet other figures have been painted, one of them the representation of a horse. We have here no less than three series of figures the last one bringing us down to the time of the Spanish Conquest.

One of the attractive features of the volume is an Appendix containing a long list of references to material used for purposes of comparison and a list of authors consulted.

GEORGE GRANT MACCURDY

The History of the Maya. THOMAS GANN and ERIC THOMPSON. (New York: Charles Scribner's Sons, 1931. 264 pp., 26 pls., 1 map. \$2.50.)

For a long time there has been a crying need for a readable, condensed, semi-popular account of the Maya Indians. This has, at last, been supplied by Messrs. Gann and Thompson.

Mr. Gann confined himself to the following four chapters: Origin of the Maya; History of the Old Empire; Art and Architecture; and the Modern Maya.

Mr. Thompson is to be credited with five chapters, viz.: History of Yucatan; Religion; Religious Ceremonies and Traditions; Daily Life, Warfare, Food and Clothing; and The Calendar.

The portions written by Mr. Gann are well-supplied with details, but lack zest and interest. The chapter on the Old Empire and the one on Art and Architecture are good and present some new facts. Some parts, however, are carelessly written; e.g., the antecedent of the pronoun *their*, top of page 26, is not apparent.

Mr. Thompson, on the other hand, injects into his lines all the affection for and deep interest in the Maya that he feels. The chapter concerned with the Maya calendar is one of the best I have ever seen; for as everyone knows, the calendric system of the Maya is extremely complex and difficult to explain to the layman. It is to be regretted, however, that Mr. Thompson forgot his dignity and saw fit to make a "wisecrack" (p. 95) about the American habit of gum-chewing. The thread of interest is broken by a quite unnecessary remark and the reader's sensibilities are jarred.

There are only a few typographical errors, although the running title of part of chapter 6 is transposed to the recto page. Each chapter is preceded by a brief summary of the contents to follow. The format of the book is attractive, for it is small, and easily slips into one's pocket; the type is clear, the paper good, the plates fair, and the order of the contents well arranged.

All in all, *The History of the Maya* is worth several readings, may be used for a quick reference, and may be safely recommended to the public, whose interest in things Maya is growing apace.

PAUL S. MARTIN

The Fur Trade in Canada; an Introduction to Canadian Economic History. HAROLD A. INNIS. (Yale University Press, 1930. 440 pp. \$5.00.)

This volume is by the associate professor of political economy in the University of Toronto. It is an historiographical survey, a rather thorough compilation from the original sources, to be used in conjunction with the author's previous book, *The Fur Trade of Canada*, published in 1927. The general social-scientific implications of the fur trade are not considered in this volume.

W. C. MACLEOD

The Analysis of the Maya Hieroglyphs. HERMANN BEYER. (Internationales Archiv für Ethnographie, 31: 1-20, 1930. 6 pls.)

In recent years most attempts to interpret Maya hieroglyphs have been made by means of mathematical formulae. By this method several workers, including Mr. Beyer himself, have solved the meanings of a number of hitherto unknown glyphs and the results can be proved mathematically correct.

In *The Analysis of the Maya Hieroglyphs* Mr. Beyer approaches the problem from a different angle. The average Maya glyph is composed of three or four separate elements, and these Mr. Beyer attempts to analyze as separate entities. The day sign Lamat, for example, is explained as four small greenstone disks placed so that their edges almost touch. The Kin sign similarly is explained as being formed by placing four small greenstone disks on a large disk of the same material.

Unfortunately Mr. Beyer's line of approach does not lend itself to "check and double check" methods. In some cases, such as the breaking down of the Muluc and Mol glyphs, he has made a strong point, but in others we have no way of telling whether his analysis is correct or not. The glyph for Tun, for instance, is explained as being composed of two main elements—a greenstone disk and two numerical bars representing ten, but one cannot see any reason why the number ten should be associated with the 360-day year. Similarly one would like some reason for associating the day sign Caban with the number one, or Ahau and Ix with three. It is not fair, however, to judge this preliminary paper by itself.

One hopes that Mr. Beyer will continue with his analysis. The results *in toto* may well supply evidence of the correctness of his deductions in those cases, on which at present one must suspend judgment.

J. ERIC THOMPSON

Archaeology of Delaware River Valley, between Hancock and Dingman's Ferry in Wayne and Pike Counties. MAX SCHRABISCH. (Publications of the Pennsylvania Historical Commission, 1930. 181 pages. 62 figs. Index.)

Archaeological research does not always yield great quantities of cultural artifacts. Nevertheless localities that reveal traces of aboriginal occupation must be investigated. To do this in the face of discouragements that would hold back the mere collector requires just the sort of persistence, scientific insight, and prowling genius that Dr. Schrabisch possesses.

The Delaware valley in Pennsylvania, chosen by Dr. Schrabisch for his investigations, was almost unknown archaeologically before he began his explorations, and his recent book—the first of the Pennsylvania Historical Commission's projected series—constitutes the only source of information now available. One gleans that traces of occupation are widespread but yield only meager results in "exhibits," at least exhibits of a striking character. Arrowpoints, potsherds, often mixed in type, celts, fire-cracked stones and bones comprise the bulk of the findings. Dr. Schrabisch distinguishes two general cultural types, the Algonkian and the Iroquoian.

The subject matter and descriptions are well handled by the author, whose English at times is intriguing. There is an unusual index to this report, but one might wish a general summary setting forth a digest of the "conclusions" that are given for each special area.

ARTHUR C. PARKER

The Roles of Men and Women in Eskimo Culture. NAOMI M. GIFFEN. (The University of Chicago Publications in Anthropology, Ethnological Series, 1930. 113 pp.)

The author of this little book has displayed an admirable energy and a very good knowledge of literature. What she lacks, on the other hand, is a little independence. The book is, in fact, only a collection of quotations without any attempt at criticism. We read, for instance, about the population of Northeastern Asia (p. ix seq.):

... while most of the investigators identify the maritime population there with the American natives, some few assert that they have been absorbed by the Chuckchee, one states that they are intermediary, two express uncertainty, while there is one instance of an assertion that Chuckchee are to be found on the American side.

This statement is really unsatisfactory in 1930! A similar lack of criticism occurs over and over again and may sometimes amount to thoughtlessness, as for instance, p. 4 seq.:

When rowing the umiak the men use a paddle rather than an oar as the women do, and even (*sic*!) face in the opposite direction.

How should the men be able to paddle backwards?

If the author does not arrive at any important conclusions, she is not, however, to be blamed for that. The topic is by itself very ingrateful to a novice (?), because among the Eskimo there is but a very small degree of labor division according to sex beyond the natural one that hardly can be explained ethnologically. There is, however, no attempt at correlation between the facts observed and the existent culture areas and culture layers. What the author should notice in the future is that it is not sufficient to collect a mass of material; it should be understood that not all sources are equally valuable and not every casual observation can be generalized. Like all other human beings the Eskimo generally act according to certain fixed rules, but within their limits there is often a wide margin for the individual and the case.

KAJ BIRKET-SMITH

The Ancient Mimbresños based on Investigations at the Mallocks Ruin, Mimbres Valley, New Mexico. PAUL H. NESBITT (Logan Museum of Beloit College Bull. 4, 1-105, 1931. 43 pls.)

A somewhat ambitious headline opens the title of "the first comprehensive account of a piece of excavation" in the Mimbres area, to quote from Kidder's foreword. The record that Nesbitt has presented is one of excavation of 61 rooms in one ruin rather than a general reconstruction of the ancient Mimbres. A full analysis of the artifacts recovered, of house types and their grouping, of burials and skeletal characteristics is given in well organized manner, with sufficient use of quantitative statements, and generously documented by excellent illustrations.

Three stages of occupation are identified:

(1) The earliest consisted of individual pit rooms, the condition of the ground determining whether adobe plaster was applied directly to the excavation or whether stones, set on end, protected the wall from caving. Burials were made beneath the floor. In pottery realistic design black-on-white Mimbres, blind (rubbed) corrugated, and plain brown ware were dominant.

(2) In the next stage the rooms were sunk more deeply and definite walls of field stones, laid in courses, protected the excavation. These walls were carried well above the ground surface. Central fireplaces and kivas were introduced. The black-on-white ware shows a large increase in frequency of geometric design and red-on-white ware becomes prominent. Corrugated pottery is of the normal, unindented type, carrying four to five coils to the inch.

(3) In the last stage the floors were nearly at the level of the ground, the rooms smaller than before, and more nearly square, the roofs supported more by numerous posts than by walls. At this time burials took place chiefly in outside, burial plots. Red-on-white ware reached its highest development, as did the making of finely corrugated indented ware.

The reviewer is not aware that this succession is based on any determination of stratigraphic superposition. The large scale map shows all excavated rooms clearing each other entirely and no mention of a double floor was noted.

Correlation with other pueblo cultures is established by finds of Tularosa and Three-Rivers-Red-on-Terracotta wares. Concerning the latter there is some confusion in the text, but apparently, like the Tularosa, it was found with the last items of the Mimbres occupation. The Chihuahua and Middle Gila polychrome finds may have been introduced after the abandonment of the site by the Mimbres people. Nesbitt places the three stages in Pueblo I, II, and III. I share Kidder's doubt as to the propriety of the assumption of great age for the beginning of this settlement. Nesbitt considers pit house construction as evidence of antiquity. In the red-on-buff country to the west and southwest of his area pit house construction and small irregular house clusters were quite general, apparently in Pueblo III time. According to the testimony of a living Ópata such houses were still built south of the Yaqui river in the past century. It may even be that the juquis in which the southern Ópata still weave their palm mats and hats are a survival of an ancestral pit house form. The occurrence of pit house ruins of many ages is so characteristic of southeast Arizona and eastern Sonora that one can hardly use them as the main basis of chronology in the near-by Mimbres country.

Nesbitt's judgment that the Mimbres people came from the south is at variance with Kidder's opinion that they were "a highly specialized off-shoot from the northern Pueblo stem." In this the reviewer is again in agreement with Kidder. The corrugated ware and black-on-white technique are of northern provenience and do not belong to the south.

An interesting correction of previous views of Mimbres culture is made by Nesbitt's determination of the random clusters of houses without presence of courts and of the absence of houses of more than one story. No trade ware from the apparently contemporaneous neighboring red-on-buff country is reported. Metates are thinner and smaller than with their western neighbors and the workmanship of the celts appears decidedly inferior. The data presented in this monograph form a welcome addition to the literature on the southern periphery of Pueblo culture.

CARL SAUER

ASIA

Social Organization of the Northern Tungus with Introductory Chapters Concerning Geographical Distribution and History of These Groups, S. M. SHIROKOGOROFF (Shanghai, China: The Commercial Press, Ltd., 1929. xiv + 427 pp.; 7 maps; 5 ills.; 14 tables. \$10.00.)

In this paper Mr. Shirokogoroff has brought together in systematic treatment the essence of all his numerous studies on the Tungus. He is a man of considerable erudition and an outstanding authority on Tungus anthropology. For five years he made a first-hand study both of the physical type and the culture of the Tungus of Eastern Siberia and the Russian Far East. This field research work was undertaken under the auspices of the Russian Committee for the Exploration of Middle and Eastern Asia (three expeditions into Transbaikalia in the years 1912 and 1913), and the Russian Imperial Academy of Sciences of St. Petersburg (travels in Mongolia and Manchuria from 1915 to 1917).

The parts of the work are: Introduction; Primary Milieu; Tungus Adaptation, Geographical Distribution and Classification of the Northern Tungus Group and their Relations with Neighbors, The Tungus Clans and Notes on the History of the Tungus; Clan Organization and Functions; Marriage; Family Organization and Functions; Property and Associations, Social Customs and General Characteristics of the Tungus; Supplementary Notes; Glossary; List of Works mentioned in this Study; Indexes.

The most interesting and at the same time the most debatable chapters of this book are those dealing with the classification of the Tungus groups and the history of their formation and migrations. There are two hypotheses on the origin of the Tungus. The first, represented by most authors, looks upon Manchuria as their cradle, while Drs. P. P. Schmidt and J. D. Falko-Hryniewicz, advocating the second hypothesis, place this somewhere in Northwestern Mongolia. Dr. Schmidt's theory is especially valuable because he points to the country south of the Altai as the original home of the Turko-Mongol-Tungus, who, according to him, sprang from a

common ancestry. Mr. Shirokogoroff disagrees with both these hypotheses and suggests as the original Proto-Tungus home some more southerly regions, i.e., Northern and Central China, on the middle and partly the lower courses of the Yellow and Yangtze rivers. Here they are said to have lived in Stone Age conditions until they were drawn away by the Chinese, who spread from northwestern China into the valley of the Yellow river. This might have happened, Mr. Shirokogoroff thinks, during the third millennium B.C., or perhaps even earlier. The wave of the Chinese immigrants, it is assumed, divided the mass of the Proto-Tungus into two parts, one of which was pushed northward and the other southward. The latter joined there some local aborigines who lived in an independent state as late as the end of the Chou dynasty.

... It is interesting to note that, according to the Manchus, the Northern Tungus living in Manchuria and the population of southern China have something in common. In fact, I have been impressed very often by seeing strikingly Tungus physiognomies among the southern Chinese and Annamites.

The southern origin of the Tungus, Mr. Shirokogoroff thinks, is indicated by many features. Thus Tungus clothing is not properly adapted to the climate of Siberia.

The adaptation of the Tungus to the Siberian environment has also resulted in their adopting or inventing eye protectors, which are absolutely necessary for people not accustomed to the spring sunlight so intensely reflected by the snow that the eyes are affected by peculiar inflammation which sometimes lasts long after the season is over. Another interesting indication as to the southern origin of the Northern Tungus may be seen in their psychic instability, and a predisposition for nervous and psychic troubles.

As a matter of fact, Tungus clothing is not suitable for the severe Siberian climate and resembles that of the Chinese in some ways, such as the apron, an overcoat of peculiar cut, and short trousers with knee protectors. But this may indicate the strong influence of the more civilized Chinese upon the primitive Tungus no matter where their motherland was. If the Proto-Tungus originated in northwestern Mongolia, as Dr. Schmidt asserts, or in Manchuria according to other orientalists, the Tungus inevitably passed Manchuria before they spread widely throughout Siberia; and in Manchuria they might have met the Chinese and borrowed their costume. Mr. Shirokogoroff's strongest argument is the similarity in physical features of the Tungus and southern Chinese. If this holds, the hypothesis offered by Mr. Shirokogoroff becomes quite probable. As to psychic instability (Arctic hysteria) and eye protectors, these arguments are very weak. The Arctic environment is so inhospitable that all the natives are subject to this nervous and psychic trouble. As for eye protectors, because of the great isolation in clear air the reflection of the sun's rays from the snow is so intense that it affects the eyes of any people, no matter whether they are natives or immigrants. No adaptation is possible. Therefore, not only the Tungus, but all the other natives of northeastern Asia have the eye protectors.

There is still one point against the hypothesis offered by Mr. Shirokogoroff. The

Turks, Mongol, and Tungus seem to have a common origin. Mr. Shirokogoroff's separation of the Turko-Mongol motherland from that of the Tungus contradicts many indications of physical as well as of cultural anthropology. In any case the hypothesis that the Tungus originated in the country occupied by northern and central China of today is very interesting but rather doubtful in the present state of anthropological knowledge.

Part 4 of the same chapter sets forth the author's views on the migrations of the northern Tungus. According to Shirokogoroff, the northern Tungus, after having spread through eastern Siberia, migrated backward into Manchuria and the Russian Far East. He asserts that there were four waves of the immigrants. The scheme of the secondary migrations is based upon the present geographical distribution of the Tungus clans, traditions, and certain very scarce historical records (analysis of the historic successions of groups and clans). Here the author again comes into a collision with the accepted classification at the present time. He refers the Oroche to the northern branch of the Tungus whereas they have been related to the southern one (Manchus).

The other chapters of the book contain a detailed description and profound analysis of the social organization of the northern Tungus. Many important and valuable generalizations are offered regarding which anthropologists will find themselves in agreement with Shirokogoroff's general position.

The Tungus are one of the most interesting peoples, and played an outstanding rôle in the ethnical formation of northeastern, eastern, and even central Asia. If Mr. Shirokogoroff is right, they even greatly influenced the physical type of the population of southern China and Annam. One of the Tungusic peoples, namely the Manchu, reached a high degree of civilization and gave the most cultured nation of the Orient its last dynasty. Any new information on Tungusic anthropology is, therefore, desirable and valuable and Mr. Shirokogoroff's paper forms a very substantial contribution to it.

Shirokogoroff's book is important also from another point of view. The author uses Russian ethnographic literature which is inaccessible for English-speaking anthropologists. He also gives a list of numerous Russian works mentioned in his book. This way he familiarizes English-speaking anthropologists with most important generalizations on Tungusic ethnography and their authors.

Shirokogoroff's book is well done, and I am sure it will be appreciated by all anthropologists interested in Asia, and especially in Siberia.

I. A. LOPATIN

AFRICA

Akan-Ashanti Folk-Tales. Collected and translated by CAPTAIN R. S. RATTRAY, and illustrated by Africans of the Gold Coast Colony. (Oxford: Clarendon Press, 1930. 275 xx+ pp. \$7.50.)

Captain Rattray's present selection of seventy-five Ashanti folk-tales forms the latest volume of his series on this advanced West African nation. He has translated

the tales almost literally, making free use of Akan idiom, and publishes with this translation a parallel text in the native language. The tales which he has chosen supply material of great value for studies of Ashanti society and religion, and are, as stories, delightfully entertaining.

They all belong in the class which the natives term "Spider Stories"—that is, the kind of tales in which the Spider, as trickster or buffoon, often appears as the chief character. The Ashanti regard none of these with the veneration in which they hold their serious historical myths. The Spider stories frequently treat the Sky god, social and religious taboos, and other sacred things, in a ludicrous way. The Spider himself often triumphs at the expense of the Sky god, as when he wins a bet from this deity, buys the god's stories—which are thenceforth called "Spider stories,"—or cheats him out of a woman. He stands in relations of peculiar intimacy with the Sky god, as his son-in-law or "soul washer" and brings shame on the family.

Other tales center on the abuse of a queen mother's child, the breaking of a taboo set by some supernatural or animal patron, the Spider's trickery or buffoonery with other animals, the exploits of a boy-hero, the ungrateful wife or improvident husband, the disguised animal bridegroom, and other familiar motifs.

Captain Rattray explains that the license allowed in these stories is an outlet for repressions. The Ashanti tell these stories only at night, prefacing each one with a formal avowal that what they are going to relate is not true, and often accompany the story with a burlesque of characters and acts for which, at other times, they maintain deep respect. This fits in with several other Ashanti customs, notably with the Apo ceremony, an occasion of "perfect lampooning liberty," when anyone may insult those in authority. The natives seem conscious of the psychological value of such license.

The selection of animals for the parts in these tales, believes Captain Rattray, depends not only on the natural characters of the species, but sometimes on the attributes of actual people against whom the point of the story is directed.

In most cases the moral or explanatory element which gives the story its title seems quite subsidiary to the tale itself. A tale usually ends with such an element as "that is why we say," or "that is how such a thing came into the tribe"; and with a formal offer of the tale to the audience: "This, my story, which I have related, if it be sweet, or if it be not sweet, take some elsewhere, and let some come back to me."

Since the book contains no detailed notes on the text, students should use it in conjunction with Captain Rattray's other works on the culture of Ashanti.

The volume is admirably illustrated with drawings made by African artists, under the direction of Mr. G. A. Stevens. From the ethnological rather than the esthetic point of view, however, we may regret that "assistance" was given to these artists on "minor technical points" and on "obvious solecisms in representation which weakened the idea of the drawing." Nevertheless, the whole presentation of these tales remains truly excellent, and we owe to Captain Rattray, Mr. Stevens, and the cooperating natives, our hearty approval and gratitude.

WALTER CHASE

Die Vorgeschichte von Sud- und Sudwest Afrika VIKTOR LEBZELTER (Leipzig: Karl W. Hiersemann, 1930. Quarto, xii and 392 pp., 48 pls.)

Much fieldwork is being done in South Africa and the results are being published. The work under review is volume 1 of a projected series to be called "Rassen und Kulturen in Sudafrica." During his two years of fieldwork in South and Southwest Africa, Lebzelter made a special study of 70 stations. The ground covered included Swaziland; Natal and Zululand; the middle Kei river region; Southwest Africa from the Angola frontier to the southern border of the Rehobot district, and the frontiers of Basutoland.

Coup-de-poing or hand-ax culture of both the Stellenbosch and Fauresmith facies is present in Swaziland. Palaeolithic culture is also found in Zululand. Lebzelter considers the Marianhill culture of South Natal to be of pre-Chellean type. The Stellenbosch culture is found in situ in Marianhill. This culture is found in the Kei region; while the caves of the Kei river have yielded a later culture classed as late Smithfield (akin to Wilton).

In southeast Cape Province, there are a number of Stellenbosch stations including Fort Hare, Middeldrift, Mosselbay, and Lovedale. Wilton culture is reported not only from Wilton, but also Howieson's Poort II. Burgherdrorp, Cradock, and Maitland are all classed as Smithfield. The most widely distributed culture in Southwest Africa has distinct hand-ax affinities and is known as the Frongo culture; it is found in a pure state at Dawid. There are no petroglyphs in that region (Lebzelter). Stellenbosch culture is found in the southern part of Southwest Africa at Neuras, Urikos, and probably at Aub. The finds from Luderitzbucht, Rote Kuppe, and Kuikop are referable to Neolithic Smithfield culture.

One chapter is devoted to typology and one to culture sequence. The prehistoric cultures of Rhodesia, Congo, Nigeria, and Kenya Colony are briefly discussed. The author has included a most helpful essay at correlation of the prehistoric culture and climatic sequence of South Africa with that of Europe. The fifty-seven figures in the text and forty-eight superb plates contribute their share toward making this volume one of rare value to the student of South African prehistory.

GEORGE GRANT MACCURDY

EUROPE

The Bronze Age V. GORDON CHILDE. (Cambridge: University Press, 1930. 258 pp., frontispiece, 31 text ill., 1 map.)

This book is intended to take up the story of prehistoric industrial development in Northwestern Europe from the point at which Mr. M. C. Burkitt's *Our Early Ancestors* left it. While not a sequel to that work, mine presupposes such knowledge of general prehistory and the New Stone Age as may be found there and is intended to appeal to the same class of students.

Thus run the first two sentences of the modest preface of Childe's latest book, in which he presents a brief story of the main events in the welding of the Bronze Age not only in Northwestern Europe, but on the continent at large.

The subject matter is treated under seven subheadings as follows: Chapter 1. The Implications of the Bronze Age. The author discusses the elaboration of technique through a series of inventions leading to the mastery of heat in the process of smelting and the recognition of certain chemical properties in making alloys. The significance of trade in the diffusion of the new cultural accomplishments and the rôle of Sumer and Egypt are properly stressed. The question of the origin of metallurgy must be left open. Chapter 2. Metallurgy and Technique. Mining, smelting, and moulding techniques, trade, trade routes, climate, vehicles, records, and chronology are described here. Chapter 3. Typology. Seventy-eight pages are devoted to the treatment of typological development of celts, daggers, swords, objects of ornament and domestic use, and of metal vessels. Chapter 4. The Early Bronze Age. Central Europe, Upper Italy, Spain, and Great Britain are considered regionally. Chapter 5. The Middle Bronze Age. Scandinavia, the Bronze Age Tumuli, Terramare, Hungary, Rhone valley, and Great Britain are taken as examples of local cultural advances in the Middle Bronze Age. Chapter 6. The Late Bronze Age. Sicily, Sardinia, Villanova, Lausitz, Alpine Urnfields, Northern Europe, Hungary, Russia, and Great Britain are treated separately to show the intensive industrial and economic progress which marked the culminating period of the Bronze Age. Chapter 7. Races. This brief chapter is devoted to the consideration of linguistic distribution rather than racial types, and indicates the difficulties involved in the association of prehistoric phases with ethnic groups.

The work is a good addition to English archaeological literature and should find glad readers among the students.

VLADIMIR J. FEWKES

Scotland: The Ancient Kingdom. DONALD A. MACKENZIE. (London and Glasgow: Blackie and Son Ltd., 1930. 383 pp. 15s net.)

The title of this book is too brief for an accurate description of its contents to others than Scotchmen. The work is a scholarly anthropological study of the races who have inhabited northern Britain from the earliest ages. It is dealt with in historical form but all controversial or speculative chronology is avoided. The book is written in an easy style and the numerous authorities cited in the text are evidences of considerable research by the author, who has written a number of books on myth and legend. The introduction of civilization into Europe from Asia or Africa and instances of Celtic survivals of customs, etc. are dealt with at some length. Nearly half the book is distinctly anthropological in character as there were no other records for the period. There is a most extensive index and a complete bibliography, which should make the work invaluable to all students or readers to whom access to a European reference library is impracticable.

ARTHUR E. ROBINSON

Prolegomena Pelasgica. Les Ligures comme substratum ethnique dans l'Europe Illyrienne et Ouralo-Hyperboréenne. JOSEPH KARST. (Strasbourg: Heitz et Cie, 1930. 1 vol. xviii+143 pp. 120 francs.)

The main thesis of this study is that the Euscaldunak Basque are not simply or properly speaking Iberians, but an ethnic group resulting from the blending and the crossing of the Proto-Iberians with the Proto-Ligurians (p. 5). This, however, is developed to a surprising degree by means of etymological conjectures well piled up. The author does not find it impossible to propose the most daring comparisons in the realm of words. A few examples will suffice.

Esquire, according to Dr. Karst, has nothing to do with *scutarius*, but corresponds "à merveille" to Basque *eskana*, *eskuna*, gentilis nationalis. And this "at teste donc la présence d'Euscaldunacs préhistoriques ou de liguroides sur les Iles Britanniques" (p. 75). *Yankee* comes from the Euskarian *vainko*, *vanko* (Dieu *tribut*). I must quote again.

De même Albanie, l'une des dénominations synonymiques d'Epirus est — Albion. Le costume et bien des us et coutumes des Highlanders gadhelo-écossais se retrouvent de nouveau en Albanie Illyrienne et en partie même en Grèce (p. 40).

Evidently, there is an unmistakable relation between the kilt and the *foustailli*.

Again, Dr. Karst will bring together Basque *azi*, *hazi*, "croître" and Modern German *wachsen*; at the same time he wishes us to notice the similarity between Basque *ugari*, abundant, and Middle High German *wuocher*, "fruit, fétus, revenu," which if it means anything, would imply that Basque and Germanic tribes remained in contact until the High German vowel shift had taken place, that is between 750 and 1100 A.D. Dr. Karst assumes borrowing on the part of Germanic (p. 57). How then is it that the same word *wuocher*, which he draws from Middle High German, rather late for a contact with Basque, should appear as *wuocher*, *wöcher* in Old High German and as *wōks* in Gothic? Does not Dr. Karst himself introduce Gothic together with "Scandinavian" as most directly affiliated to Basque? (p. 58). The closer we get to the point of contact, the fainter grows the similarity between the two words.

These are but a few examples among many of the general uncritical attitude that characterizes this study. Such expressions as *doit avoir* recur only too frequently. Every chapter fairly bristles with sonorous denominations for a galaxy of problematic ethnic groups. There is a marked insistence throughout on making capital of what may barely have been.

The book was, I surmise, originally written in German as the French text does not impress one as very idiomatic. May I remark that *moyennant* is not interchangeable with *au moyen de*, this observation might be repeated for a number of terms or expressions, for instance, page 8, *doublette*, which is found in the dictionary, it is true, but with a meaning quite different from that of *doublet*. *Maitrement* does not exist in French. The abbreviations should also have been changed, thus, *m.h.a.*, i.e. "moyen haut allemand" and not *m.h.d.*; *all.* and not D. *Hansa* should not be given merely under *Ger.*, which I take to mean "germanique," but under Gothic, as the meaning the author has in view is not "Stadtebund," but "Schar" (p. 53).

PAUL-LOUIS FAYI

NEAR EAST

Mesopotamian Origins: the Basic Population of the Near East. EPHRAIM SPEISER. (Philadelphia: University of Pennsylvania Press, 1930. Octavo, xiii plus 198 pages. \$3.00.)

Anthropologists have rightly been sceptical of past attempts to correlate race, language, and culture. Claim of such correlation is implied by the subtitle of Speiser's book while a certain loose use of the terms "race," "population," and "ethnic" will appear to justify continued scepticism. The linguistic and archaeological jargon employed by orientalists may further repel the anthropologist. We must therefore assert with emphasis that Speiser has given us data of definite value.

Mesopotamian Origins is primarily a study in philology. Orientalists have long recognized that other languages than those of the familiar Semitic and Indo-European families or even the still mysterious Shumerian were once spoken in Western Asia, and the attempt was natural to bring these outcast languages into a single family. Speiser does full justice to his predecessors, but his elaborate presentation of data and bibliography makes his study the necessary starting point for future investigations.

There is no generally accepted name for this family, but the majority of us have somewhat doubtfully called it "Caucasian" because of certain striking resemblances with some of the modern languages spoken in the Caucasus. Speiser rightly warns us that these languages still await careful investigation and that they do not all seem to hang together. He therefore revives the term "Japhethite" in parallel to Semitic and Hamitic, but this should not be adopted, for the Biblical Japhet had more relation to Indo-Europeans than to the speakers of these languages.

On the basis of a considerable number of partially deciphered Elamite inscriptions, Speiser indicates the peculiar phonetic characteristics of this language. He then points out that the "prediluvian" kings of Babylonian legend, many early sites of Babylonia, the rulers of some of the early dynasties, all had names with the same peculiarities. He therefore has some reason to assume as a working hypothesis that Elamite was the earliest historical language spoken in Babylonia. His further attempt to explain the phonetic peculiarities of the chief variant Shumerian dialect, the Eme Sal or "Women's Language," as due to non-Shumerians speaking a strange language, will probably not secure the approval of the few experts in this difficult field. He has, however, no difficulty in proving that to a relatively late date dialects of Elamite were spoken in the rough country to the north of Elam.

A second subdivision, the Hurrian, was spoken in Mitanni at the great bend of the Euphrates, even when Mitanni was ruled by blond foreigners with Indo-Iranian names. A long Mitannian letter affords a considerable insight into grammar and syntax, while hundreds of tablets from Nuzi east of the Tigris show a bewildering array of phonetic variations which can only be explained as the attempts of Hurrian-speaking natives to write the Babylonian Akkadian with its utterly different phonetic system. The true, non-Indo-European Hittite of Asia Minor also seems Hurrian, while the Haldian of early Armenia is a near relative.

In phonetics, grammar, and syntax, this family shows remarkable resemblances to some of the languages spoken today in the Caucasus. A recent study¹ has shown equally striking similarities to the Dravidian of India. Taking all the linguistic and historical evidence into consideration, it would appear probable that the languages of this family were spoken all over Western Asia at the dawn of written history and that they preceded the more familiar Semitic and Shumerian.

Thus far, it is probable that no orientalist would disagree with the general outlines of Speiser's theory, however he might question certain details. Speiser also attempts to support his theory with archaeological data. In the reviewer's opinion, support for certain positions may be found, but new material must be excavated and the material already in our possession must be restudied without prepossession for any theory before a new hypothesis is acceptable.

Speiser does know the value of skeletal evidence, but he does not utilize what we have, notably the excellent collections from Gezer and Ur. The scandalous neglect of such evidence by otherwise well conducted expeditions is passing and considerable quantities are now being collected. When this material is worked up and published, much new light will be thrown on the problem of "Mesopotamian Origins," but it will do far more. The orientalist is dealing with written, archaeological, and skeletal material in one closely connected set-up, and this set-up is at the very dawn of written history, more than five thousand years ago. Thanks to this unusually favored position and thanks especially to the possession of written records, it would seem not impossible that in due time he may be able to unravel some of the strands which connect race, language, and culture. In the recent excavations by the Oriental Institute of the University of Chicago at Alishar in Asia Minor, there is such an extraordinary correlation of skeletal material and culture, with an added if yet small amount of written documentation, as to be a portent for the future.

A. T. OLMSTEAD

Amulets and Superstitions. E. A. WALLIS BUDGE. (Oxford University Press; London: Humphrey Milford, 1930.)

The title of this book is somewhat misleading, in so far as it is too general, but the lengthy sub-title on the title page circumscribes its scope. The author limits his exposition to the Near East, ancient and modern. The discussion of various amulets is according to countries and sects. This arrangement is fully justified in a work whose object it is to acquaint the reader with some of the most important types of amuletic material in the various geographical sections of the Near East.

These sectional types are described in detail on the basis of numerous illustrations. The descriptive character of the book makes it especially valuable for museum officials whose institutions house ancient, medieval, and modern Near Eastern collections, who find themselves without a specialist in that field to act as curator or interpreter. The work is a practical guide book to this class of museum objects.

¹ G. W. Brown, *Journ. Am. Oriental Soc.*, 50 273 ff., 1930.

The sectional arrangement, however, has the shortcoming that repetitions cannot be avoided, and, moreover, that it separates artificially what belongs together or omits in one geographical section and period what is discussed for another, as, e.g., the hand amulets of ancient Babylonia and Assyria which, possibly the forerunners of the "hand of Fâtimah," are not mentioned at all. These shortcomings, however, are less felt since the purpose of the book is practical.

Chapters on the Qabbâlâh, astrology, qabbalistic systems of writing, stars or signs of the zodiac, theories about numbers, divination (water, liver, geomancy), contracts with the devil, envoûtement, and a closing chapter on miscellaneous items such as metals, good and bad colors, magical plants, magical mirrors, etc., form the second part of the work. The book is sumptuously adorned with twenty-two plates and three hundred illustrations, many of which appear here for the first time.

HENRY FR. LUTZ

PHYSICAL ANTHROPOLOGY

Die rassistischen Verhältnisse in Nordeuropa. WALTER SCHEIDT. (Stuttgart: E. Schweizerbart'sche, 1930. 197 pages, 12 maps, 45 plates, 25 text figures.)

A real need has existed for a long time for a comprehensive revaluation of the racial elements of northern Europe. In the above publication, Dr. Walter Scheidt has ably undertaken to fill that lacuna by a thorough-going analysis of the published cranial and anthropometric data. By means of a series of statistical analyses and distribution charts, Scheidt describes the racial characteristics of Norway, Sweden, Denmark, Great Britain, Faroe Islands, Iceland, and Old Americans and attempts to isolate the various racial components contained in these populations. But in spite of the apparent wealth of material, a serious handicap prevents any final synthesis. Much of the earlier work and some of the more recent investigations have lacked a necessary standardization. This is particularly true for the hair and eye color estimates given by various authors. A close critical examination of the techniques employed reveals a woeful lack of agreement and, in some cases, gross inaccuracies.

The common illusion, embalmed in countless texts, that a blond, blue-eyed, dolichocephalic population is the dominant stock in North European countries appears to have no firm foundation in fact. Correlations calculated by Scheidt show, in many instances, a definite association of blond coloration with a tendency to round heads and wide faces, and the darker complexions with narrow heads and faces. In fact, pure blondism is not found generally characteristic of these northern countries except in a few localized areas. Scheidt, moreover, finds a difference between the so-called Nordic population of Scandinavia and Great Britain which leads him to a division of the Nordic race into two branches—an Atlantic and a Scandinavian. The former is darker and more dolichocephalic, but both have tall statures. The local variations are accounted for by race mixture. Mediterranean admixture is hypothesized in parts of Wales, for example, and Lapp infiltration in northern Norway.

To students this work is of incomparable value both because of its exhaustive compilation and also because of its many pregnant suggestions.

H. L. SHAPIRO

Children Who Run on All Fours, and Other Animal-Like Behaviors in the Human Child. ALES HRDLÍČKA. (New York: Whittlesey House, McGraw-Hill Book Company, Inc., 1931. xiv, 418 pp., 27 figs., 15 plates.)

This volume is devoted to a whole class of hitherto but very imperfectly known manifestations displayed by the human child, but resembling closely corresponding behaviors in the apes and other mammals (p. 89).

This sentence from the book under review sounds the keynote of the author's investigation into the early life of the child, which latter in some way or other and of necessity is genetically, or rather phylogenetically, related to ancestral forms previous to the conclusive acquisition of the upright gait. The book is divided into a historico-technical (pp. 1-91) and a documentary part (pp. 97-403) containing the original letters to the author by parents on the behavior of their children; and there are also a general summary and conclusion, a bibliography, and an analytical index. The incentive to the book dates back over thirty years when a Huichol Indian child of the Sierra Madre tribes in the state of Jalisco, Mexico, was observed running like a little animal on all fours, but not until 1927 was the initial report published and eagerly taken up by the scientific press, which in connection with a questionnaire then resulted in the copious response of interested parents. The literature on the subject, exceedingly meager and unspecific, did not afford much constructive assistance in a problem so exclusively anthropological, which for its representation required specific emphasis of the phyletic factors. This, it must be conceded, has been accomplished in a sound and erudite fashion in the first part of the book. It may, however, be advantageous in a future edition, in view of the profusion of repetitive material to limit the selection to the outstanding cases for documentary proof.

Dr. Hrdlička begins his discourse with a review of literary references, from which it is shown that historically greater attention has been given to mental and physical development of the child than to functional behavior, i e., the specific motor manifestation of running on all fours, on which no literature in any language was found, and possibly none exists.

The statistical data reveal that 387 cases had been recorded of which 369 were white, and 18 colored (Indian, Eskimo, Negro, Australian, mestizo); that running on all fours is more common in colored than whites; that boys exceed girls in the ratio of 3 to 2, but that first-born girls exceed first-born boys; that although the age of running on all fours lies between 7 to 12 months, the earliest such locomotion occurred in boys was at 5½ months, in girls was at 5 months, and the latest was at 4 years in boys and 14 months in girls; that as regards the duration of this habit it comes to about 4 months in both sexes, but that the shortest duration was 1 month in boys and 2 weeks in girls, the longest 14 months in boys and 9 months in girls. The quadrimembral locomotion, as might have been expected, shows a number of variations even before it is reached, in which period creeping, crawling, shuffling, and hitching are resorted to. Sometimes the knees are substituted for the feet and the all-fours walking is performed backwards, sideways, in the "crab-walking" and

"crawl-fishing" variations, while the performance is governed by balance and speed. As regards the mentality of children who run on all fours they

are as a rule not only normal to decidedly above average physically, but also mentally (p. 52).

Musical faculties are at this early stage undeveloped as compared with the sense of general rhythm. This observation occasions some exceedingly apropos remarks on the nature and aesthetics of music, such as these: "Rhythm could be defined as motor music" (p. 57), and "The modern jazz . . . is merely a reversion in or from music." Inventiveness, mimicry ("imitative in sound and action," p. 59), peculiarities in speech, certain phobias like abnormal tastes and idiosyncrasies (eating dirt, soap), banging the head, thumb sucking, and so forth, are associative features during the period of quadrimembral locomotion. Under the caption of Other Animal-like Manifestations, climbing is recognized as

. . . a complex, coordinated, objective action. . . . It is one of the strongest of the numerous connecting links of man today with man of early times and with the Primate stock from which he descended (p. 72),

and no fear of height is evidenced. Fondness of animals, imitation of them, the mouth used for carrying, the prehensibility of hands, toes, and feet.

the human toes and feet are therefore still far from being wholly and permanently "denaturalized" (p. 76),

are only a few of the many animal-like manifestations. Among the curious initial postures and odd modes of locomotion, lying on their backs like little animals, rolling, swimming, squatting, bouncing, walking on tiptoe, and so forth, were observed. The

. . . wonderful unfolding living bundle of inherited endowments, physical, functional and mental . . . (p. ix),

demonstrates thus an early functional behavior the nature of which signifies

. . . phylogenetic persistence rather than a mere reminiscence or reversion . . . diminishing continuance . . . not an atavism (p. 13).

It is for the reason of ancestral inheritances becoming weakened or submerged that no Mendelian order is here applicable. And as a further proof for the naturalness of the phenomenon:

The habit is in no way harmful to the child, it is in fact rather beneficial. The children manifesting it, with infrequent exceptions, are marked by low morbidity and very low mortality (p. 92).

It seems to the reviewer that with the present study a field has been entered upon even more valuable as a record of evolutionary history than the fossil proofs of bygone ages for the reason of its living testimony. This point has been rightfully stressed by the author, who by a comprehensive treatment of his subject has thus initiated a study which has already shown not only its biologic importance but which for the future holds out bold promises of new and unexpected revelations.

BRUNO OETTEKING

Race Mixture. EDWARD BYRON REUTER. (New York: McGraw-Hill, Whittlesey House, 1931. \$2 50)

This book is a welcome contribution to the literature of racial miscegenation not so much for new facts but for a different point of view, as the author perceives the crux of the problem as sociological rather than biological.

Two main doctrines in regard to this subject have hitherto existed, both fundamentally assuming culture to be a function of race. One school, and the more vociferous, sets up purity of race as an essential for high culture and views miscegenation as presaging the collapse of civilization. On this side are the exponents of the Nordic cult, the mental testers who ignore the reflection of cultural background in their tests, and popular prejudice. Opposed to these is the group which would have racial mixture as a necessary prelude to cultural advance, claiming that all great civilizations of the past have been those of racially heterogeneous people and that at the present time it is precisely those regions of greatest racial purity which are most backward in culture.

By selecting cases both groups are able to offer spurious proof but neither position is tenable in the light of impartial evidence. Neither in-breeding nor cross-breeding, as such, has any beneficial or injurious results, the net effect of racial miscegenation on the biological level being merely to increase the variety of inheritable factors in the cross-bred strain with the ultimate production of a modified racial type.

Doctor Reuter advances the thesis that biological mixture and cultural advance both result from the contact of peoples but that neither is a direct cause of the other. Inasmuch as there is no satisfactory evidence that either racial homogeneity or heterogeneity have any causal relation to civilization, the fact of biological race mixture has little bearing on problems of culture. Hence, racial intermarriage and miscegenation are chiefly significant from a sociological point of view as regards their effect on the future of society.

The defense of this thesis forms the unifying element of the book, serving to connect such chapters as "Color and Achievement," "The Legal Status of Racial Intermarriage," "The Changing Status of the Mulatto," "The Personality of Mixed Bloods," and "The Hybrid as a Sociological Type." Of particular interest is the chapter on the achievement of the mulatto, in which sexual selection is invoked to account for the demonstrated superiority of mixed-bloods over the darker racial strains. The mulattoes occupy a higher social position by reason of tradition and their lighter skins, hence they are desirable mates for the blacks. But only the superior and thus eligible blacks can marry into the lighter group. As a result whatever talent there is among the mulattoes remains among the mulattoes; whatever talent there is among the black group marries into the mulatto caste. In either event the talent of the whole race finds its way into the mulatto group—and the full-blood is correspondingly impoverished.

The biological result of negro-white crossing is the production of a type physically conspicuous in comparison with either parent and this physical appearance be-

comes the basis for a social status differing in the same way. The superior achievement of the mulattoes rests, then, not on the biological fact of mixed blood but upon the differential social treatment they receive as a consequence of their hybridism.

The mixed-blood is an unadjusted person. His immediate group has no respected place in the society. In ideals and aspirations he is identified with the culturally dominant group; in social role and cultural participation he is identified with the excluded group.

Culturally as well as racially the mixed-bloods are hybrids, the situation engendering personal and group conflicts and maladjustments. It is in these conflicts and maladjustments both in the two parent groups and in their cross-bred offspring that the most significant problems of race mixture are to be found.

Although data from other parts of the world are used to some extent, the discussion relates mainly to negro-white mixture in the United States and this is perhaps the chief weakness of the study. But this is a minor fault in a book so obviously designed to present a new attitude rather than an exhaustive analysis.

Doctor Reuter has written an eminently readable book, stimulating in its point of view and fairly well documented in reference to the United States. While all may not agree that the biological aspects of racial miscegenation are of only minor social significance there can be little question that this book admirably succeeds in promoting a new and apparently fruitful approach to the problem. It is a worthwhile addition to the literature of race mixture.

FORREST CLEMENTS

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DISCUSSION AND CORRESPONDENCE

NAVAHO SAND-PAINTINGS

In the fall of 1929, I worked in the Black Mountain region copying sand-paintings for the Navaho section of the Santa Fé laboratory.

Hasteen Ayon de leh was my informant and Haske Nas-Wood, my interpreter. I was able to record seventy-six paintings from fourteen different chants.

After the three months' work was finished, Hasteen Ayon de leh asked if I would like to have two sand-paintings used in Star gazing. Of course I was deeply interested, not knowing that sand-paintings were used in prognostication.

My informant told me that the painting is made on the west side of the hogan floor. The patient sits on the painting, facing the east, and keeps his eyes fastened on a rock crystal placed on the floor directly under the sky hole. Eagle feathers stand in the sand at the four points of the compass. They are payment to the Star people.

The prognosticator goes outside of the hogan with another rock crystal in his hand, which he holds up to the sky while he addresses the stars in song. The song commences with the words: "Big Star, I am your child."

Both he and the patient inside watch the rock crystal for a sign. If the rays of a star shine through the crystal to a certain part of the body, that is a sign that the illness is located in that part of the body. This knowledge helps to determine which chant should be given.

I am writing this because I note that William Morgan, in his article, *Navaho Treatment of Sickness: Diagnosticians* (AA 33:390-402, 1931), states:

Diagnosticians do not use sand paintings or masks, nor do they possess tribal legends about their work.

The two paintings that I made are similar in design, one being male in color (black), the other female (blue). A rectangle of solid color represents the rock which reaches to Heaven. On it are four bear tracks. The stars visit with bear friends.

I have five hundred feet of film which record the Star Gazing ceremony outside the hogan. I have not the translation of the prayer but could procure it.

LAURA ADAMS ARMER

TOBACCO IN NEW GUINEA

For many years I have been accumulating material for an investigation on the decorated bamboo tobacco pipes of New Guinea and incidentally on the distribution of the methods of smoking in the island. I have collected also the native names for the pipes and for tobacco, but it will be some time before I can publish my conclusions. As there was some ambiguity concerning the species of the native tobacco, in 1928 I requested my friend Sir Hubert Murray, the Lieutenant-Governor of Papua, and Brigadier-General E. A. Wisdom, Administrator of the Territory of New Guinea, to obtain specimens of the plants grown by the natives in widely separated areas, in order that they might be identified. They immediately requested numerous government officials to collect specimens for me, and these in due course sent

me a large amount of material—dried leaves, flowers, and seeds. I asked Mr. J. S. L. Gilmour, Curator of the Cambridge University Herbarium, to study the specimens and rear plants from seed. His report, with ten illustrations, has just been published (*The Species of Tobacco grown in New Guinea, Territory of Papua, Anthropology, Report 11, 1931* [E. G. Baker, Government Printer, Port Moresby]), and it is from this that the following information is taken.

Mr. Gilmour follows the terminology adopted by Dr. O. Comes in his work, *Della Razze dei Tabacchi*, Naples, 1905. Dr. Comes recognizes six main varieties of *Nicotiana Tabacum* Linn. and a large number of subsidiary forms regarded by him as hybrids between them. In the New Guinea plants examined, three of these subsidiary forms are represented: (1) "China" tobacco (according to Comes) is a hybrid between the varieties *fruticosa*, *brasiliensis*, and *lanceifolia*, and is one of the petiolate forms; (2) "Java" tobacco, a hybrid of *fruticosa*, *brasiliensis*, *havanensis*, and *macrophylla*, is also petiolate but has broader leaves than "China"; (3) "Manila" tobacco is a simple hybrid between *havanensis* and *macrophylla* and has leaves tapering to the stem in a broad wing. One of the petiolate varieties must have been the original cause of the uncertainty regarding New Guinea tobacco and it is clear that it was Maiden who made the original mistake.

Mr. Gilmour has dealt with 36 samples (four of which were determined after his paper was in print) and has tabulated their distribution, native names, and the forms to which they belong. The latter, however, do not appear to follow any recognizable order of distribution. The localities include the upper Morehead river in the extreme west of Papua (British New Guinea), the middle region of the Fly river; near the Kiko river, Sambrigi valley, north of Mt. Murray, altitude 5000 feet; neighborhood of Mt. Yule; the upper Waria and Gira rivers; Chirima valley; the region east of the Owen Stanley range including the headwaters of the Mamba and Kumusi rivers, all in Papua, the Markham valley, Madang district; and Sepik river, in Mandated New Guinea; and Rabaul in New Britain. Thus the material has been gathered from a sufficiently wide area to satisfy any reasonable demands and most of it has been obtained from inland mountain country.

Mr. C. T. White, the Government Botanist, Botanic Museum and Herbarium, Brisbane, Queensland, says in a letter dated November, 19, 1928:

The Australian plant *Nicotiana suaveolens* has not been recorded for New Guinea. The common plant there is *N. Tabacum*. This is a native of America but is recorded as having been planted in native gardens in New Guinea before the time of white occupation. I have no references to *N. rustica* as a Papuan plant.

Mr. Gilmour says

that on this evidence, the only species cultivated in New Guinea is *Nicotiana Tabacum* Linn., and that there is no indigenous species present.

He also makes a few remarks about the introduction of tobacco into New Guinea based on Comes's *Histoire du Tabac* and Dr. Merrill's article in the *American An-*

thropologist (32.101, 1930). I do not propose to say anything on this subject until I have worked over my notes. I may however express my belief that tobacco was introduced into the northwest of New Guinea and that it spread southeastward down the mountainous interior and filtered down to the coast along various rivers. In 1888 it does not appear to have reached the north coast of Papua from Ipote near Cape Vogel, westward. Though there is a native species of tobacco in Australia and, according to de Candolle, another species in the Isle of Pines, there is absolutely no evidence of an indigenous tobacco in New Guinea, however much one might expect to find an indigenous species there. There is also no evidence that the Australians smoked tobacco or any other plant until smoking was introduced by Europeans, nor is there any indisputable evidence that the natives of New Guinea discovered by themselves the art of smoking tobacco, so far as our evidence goes, that art was first acquired in America and thence spread all over the world.

The well-known characteristic method of smoking, or rather of inhaling, appears from my evidence to have been first practiced somewhere in the upper reaches of the Fly river, and it is almost confined to Papua. It has however crossed for a short distance into Netherlands New Guinea west of the Fly and is practiced by the Marind-Anim; it has also spread into the extreme south of Mandated New Guinea. Elsewhere tobacco is smoked in the form of cigars or cigarettes and in some places the rolled-up tobacco is smoked in tubes, the use of pipes for smoking in the Arfak mountains is quite different and belongs to another cultural influence, as is the case at Bougainville.

I quite agree with Dr. Lewis in regarding the use of tobacco in New Guinea as "a remarkable case of cultural diffusion." It was this aspect of the problem that especially attracted me as it has been entirely uninfluenced by a racial movement or by any religious cult. It is simply a secular cultural trait that has spread solely by its own merit as an individual pleasure and as tending to sociability.

A. C. HADDON

WINNEBAGO BELIEFS CONCERNING THE DEAD

The Indian warrior believed that he controlled the spirits of his slain enemies. This is known to ethnologists, but its application in modern life may be of interest.

On August 26th, 1931, at Kilbourn, Wisconsin occurred the death of Mrs. Tom Thunder, a Winnebago woman. She was a good dancer and had many friends throughout the tribe. Moreover, her death occurred in a large camp and a man from Nebraska who knows the ritual for the dead was present. He and a relative named Andrew Black Hawk had charge of the native rites. Everything that pertained to the burial was according to the custom of the white race and the little body was laid to rest in a cemetery, but the rites for the spirit were in the hands of her own people.

The writer had known Mrs. Thunder for several years and was in the camp during the days that followed her death, being kept informed of the various events though their meaning was not fully understood until after it was all over. Then Sam Carley, who recited the prayers and speeches, sat down quietly and described it all

By his explanation it became clear why they had sent for young men who served in the World war and why these men had told of their exploits during the three nights after Mrs. Thunder died. It was clear, also, why her little cooking fire was extinguished on the fourth night after her death: the spirit of Mrs. Thunder had gone away at daybreak.

There are no more Winnebago warriors who have fought with other tribes and returned with scalps of the enemy. In the old days such men would have commanded the conquered warrior-spirits of other tribes to attend the spirit of Mrs. Thunder on its four-day journey. But the old beliefs remain in the mind of the modern Indian and seek expression in a new way, therefore the Winnebago called upon their young men who fought in France. Four of these young men told of their experiences at the front where they saw hard service, and each ex-soldier made a speech as a sort of credential for what he would do on the fourth night, when the spirit of Mrs. Thunder went away. The writer remained at the camp until midnight and the subsequent events were described a day or two later by Sam Carley.

There was a feast and Andrew Black Hawk talked to the spirit of Mrs. Thunder, telling of the four difficulties she would encounter on her way to the spirit land. The fourth difficulty was a great darkness, and as soon as she had passed through this darkness she would see the spirit village and her friends coming to meet her. After the feast came the final preparations for her departure. One after another the young soldiers arose and talked to the spirits of dead Germans, each addressing a man whom he had killed and believed that he could command. These young Indians told the German spirits to attend Mrs. Thunder on her way, to carry food and tobacco for her, and to carry fuel and make her fire each night, that she might have light and warmth and be able to cook her evening meal. They were instructed to provide for her comfort in every way until they met her friends, who would escort her to the spirit village. There was no doubt of the faithfulness of the attendant spirits. They were men who had proved themselves valiant, though conquered.

When the sun was at the top of the trees the Indians ate again, and then they played the "bowl-and-dice" game, given to the Indian women by the spirit-women in the morning sky. Many benefits are promised when the game is played in a ceremonial manner, and this was an action in which all could join to help their friend. While they were playing the game the spirit of Mrs. Tom Thunder went away.

FRANCES DENSMORE

EARLY HOUSE BUILDERS OF THE BRUSH CREEK REGION IN NORTHEASTERN UTAH

During the last summer the writer examined several squarish houses in the Brush creek country in northeastern Utah. These were all built of undressed river cobbles, which were laid up in thick walls chinked in with mud mortar. On the whole, the houses, which ranged from fifteen to twenty-seven feet to a side, much resemble the stone part of the Class A houses of the Piedra district of southwestern

Colorado.¹ Furthermore, about them are small circular structures, stone piles, and stone-edged circles, squares, and rectangles, which remind one much of the shrines of the Small House People of northern New Mexico.²

The people who occupied these houses had extensive irrigation ditches and storage reservoirs. They also raised corn and pumpkins. While scattered about the houses are milling, hammer, hand-hammer, and smoothing stones, arrowpoints, quantities of chipped material, stone plug-stoppers for jars, stone knives, lance or spearheads, stone drills, an occasional pestle, gaming balls, an occasional whole jar (found in excavations), stone agricultural implements, and fragments of coarse undecorated, smoothed, gray pottery.

The houses were probably erected in the latter part of Pueblo I or at about the beginning of Pueblo II horizon, though the crude pottery of their makers and its scantiness might place them still earlier in the time scale.³

ALBERT B. REAGAN

OURAY, UTAH

¹ Frank H. H. Roberts, Jr., Early Pueblo Ruins in the Piedra District, Southwestern Colorado, BAE-B 96 60-66, 1930.

² William Boone Douglas, Shrines of the Small House People of Northern Arizona, El Palacio, pp. 19-29 (Santa Fe), July, 1917.

³ The funds for carrying on the archaeological work of this paper were kindly furnished by the Laboratory of Anthropology, at Santa Fe.

ANTHROPOLOGICAL NOTES AND NEWS

RESOLUTION FOR MRS. LOUISE WELLES MURRAY

WHEREAS, in the death of Mrs. Louise Welles Murray the Society for Pennsylvania Archaeology has lost one of the most esteemed of its officers; and

WHEREAS, in her death not only Pennsylvania archaeology but American archaeology, as a whole, has lost an able student and editor; and

WHEREAS, it is through her efforts that the Archaeology of Bradford county, Pennsylvania has been investigated, recorded and made available to students in her admirable Museum and her publications:

BE IT RESOLVED, that the Society for Pennsylvania Archaeology, realizing their loss of her enthusiasm and constant interest, advice and assistance, enter a record of this upon their minutes, and send copies to her family, and to the American Anthropological Association, and the American Association of Museums.

PALESTINE RICH IN RELICS OF PREHISTORIC RACES

The American School of Prehistoric Research, of which Dr. George Grant MacCurdy of Yale University is Director, has been carrying on excavations in Palestine for three seasons jointly with the British School of Archaeology at Jerusalem. Last May (1931) digging was carried on in caves near Athlit, at the foot of Mount Carmel. The results were very gratifying.

The sites included Mugharet-el-Wad, Mugharet-es-School, Mugharet-et-Tabon, and Mugharet-el-Kebara. The last is at Zickron Yacob and proved to be an exceptionally rich site. It was opened this last season so that its complete sequence of cultures has not yet been uncovered. In the deposits containing a culture known as Mesolithic—older than the Neolithic and younger than the Palaeolithic—they have already found a mass burial of eight or ten interments. These duplicate in many respects the one found at Mugharet-el-Wad last season. Near the skeletons was a cache of 150 bone beads. Mesolithic microliths were very abundant. Objects of bone were also abundant and well preserved. Many harpoons were also found.

The prize specimen is a complete haft in bone of a knife or sickle twelve inches in length. The animal represented in the round and terminating the handle is probably a goat. The longitudinal groove for inseting the microliths is too narrow for any but very small ones. The decorated portion of a similar haft in bone was found at Mugharet-el-Wad two years ago.

Most important of all is the skull of a Neandertal child found embedded in breccia of a Mousterian deposit. The find was made by Theodore D. McCown, representing the American School. This is the third skull of a Neandertal child discovered to date: the first by Henri Martin at La Quina (Charente) during the World War; the

second by Miss Dorothy Garrod in the rock shelter of Devil's Tower at Gibraltar in 1926. Miss Garrod was in charge of the joint excavations near Athlit. Mr. McCown is a graduate of the University of California and was with Dr. MacCurdy in Europe last summer (1930) as a student of the American School of Prehistoric Research.

* * * * *

DR. BERTHOLD LAUFER, Curator of Anthropology at the Field Museum of Natural History, has received the honorary degree of doctor of laws from the University of Chicago.

WIRA KOCHA, *Revista Peruana de Estudios Antropologicos*, is the title of a new anthropological journal, edited by Dr. Julio C. Tello. The annual subscription is five dollars. Volume 1, no. 1, for January-March, 1931, contains the following original articles: (1) Kausay.—Alimentación de los Indios, by M. T. M. Nesape; (2) El Vencejo (*Cypselus*) en el Arte decorativo de Nasca, by E. Yakowleff; (3) La Indumentaria en la Antigua Cultura de Paracas, by R. C. Cachot; (4) Un Modelo de escenografía plástica en el Arte Antiguo Peruano, by J. C. Tello; (5) Leyenda Chinchay Suyu.—Ichik Ol'qo, by N. S. V. Cadillo.

THE MUSEUM OF NORTHERN ARIZONA held an exhibition entitled, "The Hopi Craftsman," at the Museum building, Flagstaff, Arizona, last June 30 to July 6. This was the second annual exhibition of Hopi art.

THE CONGRESS OF THE INTERNATIONAL INSTITUTE OF AFRICAN LANGUAGES AND CULTURES is to be held in Paris on October 14-19, 1931.

PROFESSOR F. C. COLE, University of Chicago, has been elected president of the Illinois State Academy of Science for the year 1931-1932.

DR. REO FORTUNE and Dr. Margaret Mead sailed from New York on August 22nd for two years field work on the mainland of New Guinea and in the adjacent islands. Dr. Mead will make collections and pursue ethnographic researches on behalf of the American Museum of Natural History; Dr. Fortune is working under the auspices of the Columbia University Council in the Social Sciences.

BETWEEN August 31 and September 3, 1931, an archaeological conference was held at Vermillion, South Dakota, under the auspices of the University of South Dakota. Archaeologists from Colorado, Iowa, Nebraska, Minnesota, Michigan, North Dakota, South Dakota, Wisconsin, and the Smithsonian Institution were present and each presented a brief review of the archaeological situation in his area. Emphasis was placed upon problems and cooperation in the Upper Missouri River drainage and adjacent regions. The clear distinction between historic (documented), proto-historic (containing evidence of European contact), and prehistoric

(strictly aboriginal) sites and cultures was strongly recommended in future work. Detailed discussion of field problems, aided by examination of sample collections of artifacts, brought about a keen appreciation of the interrelationship of the culture problems of this and adjacent regions. Through the courtesy of Dr. W. H. Over, certain members of the conference later visited a number of strategic sites in southeastern South Dakota.

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DR. FRANZ HEGGER, formerly director of the anthropological-ethnographical section of the Natural History Museum in Vienna, died on July 23, 1931.

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INDEX TO AUTHORS AND TITLES

- ANALYSIS OF THE NORTHWESTERN Chihuahua Culture, An, 325
- ARCHAEOLOGY OF CENTRAL TEXAS. Notes on the, 16
- ARMER, LAURA ADAMS, Navaho Sand-Paintings, 657
- AUSTRALIA. PRESERVATION of Local Types of Weapons and other Objects in Western, 1
- AUSTRALIAN MURNGIN TYPE of Kinship, Morphology and Functions of the, 172
- BALLARD, A. C., Mythology of Southern Puget Sound, review of, 426
- BARBEAU, C. M., Totem Poles of Gitksan, review of, 238
- BASKET MAKERS, Pottery Implements of the Ancient, 263
- BEADS FROM PREHISTORIC PUEBLOS, Minute, 80
- BEALS, R., Review by, 117
- BEAR RIVER SHAMAN'S Curative Dance, A, 38
- BEEN AND KAN, The Maya Day-Signs, 199
- BENDANN, F., Death Customs, review of, 451
- BENEDICT, RUTH, Reviews by, 432, 452
- Benitez, C. See Steiger.
- BEYER, HERMANN, Maya Day-Signs Been and Kan, 199; The Analysis of the Maya Hieroglyphs, review of, 634
- Beyer, H. O. See Steiger.
- BIRKET-SMITH, KAJ, Review by, 635
- Blackmar, F. W. See Gillin.
- Block, G. H. See Gifford.
- BOSCH, F., Les Banyamwezi of East Africa, review of, 115.
- BRIFFAULT, R., The Mothers, review of, 630
- BROWN, F. D. W., Polynesian Leis, 615
- BRUSH CREEK REGION in Northwestern Utah, Early House Builders of the, 660
- BRYAN, FRANK, Notes on the Archaeology of Central Texas, 16
- BUDGE, E. A. W., Amulets and Superstitions, review of, 645
- BULLETIN OF THE TEXAS ARCHAEOLOGICAL and Palaeontological Society, review of, 238
- BUSHNELL, W. I., Review by, 421
- CAREY, HENRY A., An Analysis of the Northwestern Chihuahua Culture, 325
- CAVES NORTH OF THE HIMALAYA, Prehistoric, 42
- CHIHUAHUA CULTURE, An Analysis of the Northwestern, 325
- CHILAM BALAM DE CHU MAYIL, Yucatan, The Spanish of the, 267
- CHILDE, V. GORDON, The Most Ancient East, review of, 245; The Bronze Age, review of, 641
- CLEMENS, F., Plains Indian Tribal Correlations with Sun Dance Data, 216; review by, 649
- CLINE, 639, Review by, 639
- COCHITI PUEBLO, White-on-Red Pottery from, 263
- COLF, F.-C., George A. Dorsey, 413
- COLTON, MARY R. AND HAROLD S., Petroglyphs, The Record of a Great Adventure 32
- COLUM, P., Orpheus, Myths of the World, review of, 452
- CULTURE GROWTHS and Organic Evolution, Historical Reconstruction of, 149
- DANCE, A BEAR RIVER SHAMAN'S CURATIVE, 38

- DAY-SIGNS BELN AND KAN, The Maya, 199
- DEBENEDETTI, S., Las Ruinas del Pucara, Tilcara, Quebrada de Huamaca review of, 244
- DEMETRACOPOLIOU, D., Review by, 426
- DENSMORE, FRANCES, Winnebago Beliefs Concerning the Dead, 659.
- DESCAMPS, P., Etat social des peuples sauvages, review of, 419
- DIAGNOSTICIANS. Navaho Treatment of Sickness, 390
- DISTRIBUTION AND PROCESS of Suttee in North America, The, 209
- DIXON, R. B., Dr. Merriam's Tl6-homtah'hoi, 264, review by, 450
- DOCTRINE OF SURVIVALS, The, 307
- DORSEY, GEORGE A., Obituary of, 413
- DU BOIS, C., Reviews by, 419, 452, 628
- DUMÉZIL, G., Légendes sur les Nartes, etc., review of, 452
- EARLY HOUSE BUILDERS of the Brush Creek Region in Northeastern Utah, 660
- EDUCATION AT ONGTONG JAVA, Solomon Islands, 601
- ESKIMO DISTRIBUTION in the Labrador Peninsula, Montagnais-Naskapi Bands and Early, 557
- EVOLUTION, HISTORICAL RECONSTRUCTION of Culture Growths and Organic, 149
- FAYE, PAUL-LOUIS, Review by, 642
- FEWKES, JESSE WALTER, Obituary of, 92; review by, 641
- FORDE, C. D., Reviews by, 127, 129, 245
- FOSSIL HUMAN REMAINS, Recent Discoveries of, 140
- FRAZER, J. G., Myths of the Origin of Fire, review of, 107
- FURST, C. M., Zur Anthropologie der prähistorischen Griechen in Argolis, etc., review of, 446
- GANN, THOMAS, AND THOMPSON, J. ERIC, The History of the Maya, review of, 634
- GARDNER, G. A., Rock-Paintings of Northwest Cordoba, review of, 631
- GIFFEN, N. M., The Rôles of Men and Women in Eskimo Culture, review of, 635
- GIFFORD, E. W., AND BLOCK, G. H., Californian Indians Nights Entertainments, review of, 432
- GILLIN, J. L., AND BLACKMAR, F. W., Outlines of Sociology, review of, 112
- HADDON, A. C., Tobacco in New Guinea, 657
- HAMBLY, WILFRID D., Local Types of Weapons and other objects in Western Australia, 1; Types of "Tonnattas" or Stone Implements of Tasmania, 88; reviews by, 112, 115
- HAURY, EMIL W., Minute Beads from Prehistoric Pueblos, 80
- HENSHAW, HENRY WETHERBEE, Obituary of, 98
- HERZOG, G., Review by, 253
- HEYINK, J., Herman F. C. ten Kate, 415
- HIMALAYA, Prehistoric Caves North of the, 42
- HISTORICAL RECONSTRUCTION of Culture Growths and Organic Evolution, 149
- HODGE, F. W., Henry Wetherbee Henshaw, 98; Herman F. C. ten Kate, 415
- HODGEN, MARGARET T., The Doctrine of Survivals, 307
- HOGGIN, H. IAN, Education at Ongtong Java, Solomon Islands, 601
- HOOTON, E. A., Review by, 444
- HOPI CEREMONIES in their Initiatory Form in 1927-1928, Notes on, 46
- HOUGH, WALTER, Jesse Walter Fewkes, 92
- HOUSE BUILDERS of the Brush Creek Region in Northeastern Utah, Early, 660
- HRDLICKA, A., Children Who Run on All Fours, review of, 647
- HUFFMAN, RAY, Nuer English Dictionary, review of, 114

- IMPLEMENTS OF THE Ancient Basket Makers, Pottery, 263
- IMPLEMENTS USED BY THE ABORIGINES of Tasmania, Types of "Tronattas" or Stone, 88
- INDIAN OFFICE Pays a Debt, The, 228
- INNIS, HAROLD A., The Fur Trade in Canada, review of, 634
- KAN, THE MAYA DAY-Signs Been and, 199
- KARST, JOSEPH, Prolegomena Pelasgica, review of, 642
- KARSTEN, R., Ceremonial Games of the South American Indians, review of, 243
- KELLY, I. T., Review by, 243
- KIDDER, A. V., Review by, 121
- KINSHIP, MORPHOLOGY AND FUNCTIONS of the Australian Murngin Type of, 172
- KROEBER, A. L., Historical Reconstruction of Culture Growths and Organic Evolution, 149; reviews by, 112, 118, 120, 231, 236, 238, 244, 248
- KROM, N., Review by, 435
- LABRADOR PENINSULA, Montagnais-Naskapi Bands and Early Eskimo Distribution in the, 557
- LACHMANN, R., Musik des Orients, review of, 253
- LAUFER, B., Tobacco in New Guinea; an epilogue, 138; Geophagy, review of, 450
- LEBZELTER, V., Die Vorgeschichte von Sud- und Sudwest Afrika, review of, 641
- LEIS, POLYNESIAN, 615
- LEWIS, A. B., Tobacco in New Guinea, 134
- LIPPERT, J., Evolution of Culture, review of, 627
- LINNÉ, S., Darien in the Past, review of, 118
- LOEB, E. M., Religious Organization of North Central California and Tierra del Fuego, 517; reviews by, 250, 252
- LOPAIN, S. I., Review by, 637
- LOTHROP, S. K., Review by, 244
- LOWIE, R. H., Notes on Hopi Clans, review of, 232; Hopi Kinship, review of, 232, reviews by, 111, 626
- LUNDBERG, G. A., Social Research, review of, 106
- LUQUET, G. H., L'Art primitif, review of, 625
- LUIZ, H. F., Review by, 645
- MACCUDY, G. G., Reviews by, 420, 631
- MACKENZIE, D. A., Scotland: The Ancient Kingdom, review of, 642
- MACLEOD, W. C., Distribution and Process of Suttee in North America, 209; The American Indian Frontier, review of, 631; review by, 634
- MADDOX, J. L., The Medicine Man, review of, 252
- MARTIN, PAUL S., Review by, 633
- MASON, J. A., Review by, 433
- MAUDSLAY, ALFRED PERCIVAL, Obituary of, 403
- MAYA DAY-Signs Been and Kan, The, 199
- MCKERN, W. C., Wisconsin Pottery, 383
- MEAD, MARGARET, Growing Up in New Guinea, review of, 248
- MEANS, PHILIP A., Peruvian Textiles, review of, 244
- MENGHN, O., Weltgeschichte der Steinzeit, review of, 420
- MERRIAM, C. HART, Henry Wetherbee Henshaw, 98
- MERRIAM'S "TLO'-HOM-TAH'-HOI," Dr., 264
- MERRILL, E. D., The Phytogeography of Cultivated Plants in Relation to Assumed Pre-Columbian Eurasian-American Contacts, 375
- MIFESSLI, MILTON, Phonophotography in Folk Music, review of, 108
- MIDDLE GILA, Prehistoric Pottery and Culture Relations in the, 268
- MIMBRES RIVER RUINS, Two, 51

- MINUTE BEADS FROM PREHISTORIC PUEBLOS, 80
- MONTAGNAIS-NASKAPI BANDS and Early Eskimo Distribution in the Labrador Peninsula, 517
- MOOREHEAD, W. K., Review by, 421
- MORGAN, WILLIAM, Navaho Treatment of Sickness: Diagnosticians, 390
- MORPHOLOGY AND FUNCTIONS of the Australian Murngin Type of Kinship, 172
- MÜLLER-LYER, The Family, review of, 627
- MURNGIN TYPE OF KINSHIP, Morphology and Functions of the Australian, 172
- NAVAHO SAND-PAINTINGS, 657
- NAVAHO TREATMENT OF SICKNESS: Diagnosticians, 390
- NEGRO SPIRITUAL, The, 157
- NESBITT, PAUL H., The Ancient Mimbresños, review of, 636
- NEWCOMBE, W. A., Review by, 238
- NOAH WEBSTER, THE ARCHAEOLOGIST, 620
- NOMLAND, GLADYS A., A Bear River Shaman's Curative Dance, 38
- NORDENSKIÖLD, E., *Ars Americana; L'Archéologie du Bassin de L'Amazonie*, review of, 433
- NOTES ON THE ARCHAEOLOGY of Central Texas, 16
- NOTES ON HOPI CEREMONIES in their Initiatory Form in 1927-1928, 46
- OBITUARIES, Fewkes, 92; Henshaw, 98; Smith, 230; Maudslay, 403; Dorsey, 413; ten Kate, 415
- OETTEKING, B., Craniology of the North Pacific Coast, review of, 444; reviews by, 443, 446, 000
- OLMSTEAD, A. T., Review by, 644
- ONGTONG JAVA, Solomon Islands, Education at, 601
- PARKER, A. C., Review by, 634
- PARSONS, E. C., Review by, 232
- PETROGLYPHS, THE RECORD of a Great Adventure, 32
- PHYTOGEOGRAPHY OF CULTIVATED Plants in Relation to Assumed Pre-Columbian Eurasian-American Contacts, The, 375
- PLAINS INDIAN TRIBAL Correlations with Sun Dance Data, 216
- PLANTS IN RELATION to Assumed Pre-Columbian Eurasian-American Contacts, Phytogeography of Cultivated, 375
- POLYNESIAN LEIS, 615
- POND, A. W., A Contribution to the Study of Prehistoric Man in Algeria, North Africa, review of, 438, review by, 625
- PONTOIS, B., *Le Finistère préhistorique*, review of, 129
- POTTERY AND CULTURE RELATIONS in the Middle Gila, Prehistoric, 268
- POTTERY FROM COCHITI PUEBLO, White-on-Red, 263
- POTTERY IMPLEMENTS OF THE Ancient Basket Makers, 263
- POTTERY, WISCONSIN, 383
- PRE-COLUMBIAN EURASIAN-AMERICAN CONTACTS, Cultivated Plants in Relation to Assumed, 375
- PREHISTORIC CAVES NORTH of the Himalaya, 42
- PREHISTORIC POTTERY AND CULTURE Relations in the Middle Gila, 268
- PREHISTORIC PUEBLOS, Minute Beads from, 80
- PRESERVATION OF LOCAL Types of Weapons and other Objects in Western Australia, The, 1
- PREUSS, K. TH., *Tod und Unsterblichkeit im Glauben der Naturvölkerkunde*, review of, 626
- PUEBLOS, MINUTE BEADS from Prehistoric, 80
- RADIN, PAUL, Primitive Man as Philosopher, review of, 231
- RATTRAY, R. S. Akan-Ashanti Folk-Tales, review of, 639

- RECENT DISCOVERIES of Fossil Human Remains, 140
- REDFIELD, ROBERT, Review by, 106; Tepoztlan, review of, 236
- RELIGIOUS ORGANIZATIONS of North Central California and Tierra del Fuego, 517
- RENAUD, E. B., Review by, 440
- REUTER, E. B., Race Mixture, review of, 649
- ROBERTS, JR., F. H. H., Shabik'eschee Village, review of, 121
- ROBERTS, H. H., Review by, 108
- ROBINSON, ARTHUR E., Review by, 642
- SAND-PAINTINGS, NAVAHO, 657
- SAPIR, E., Review by, 114. *See also* Spier
- SAUER, C. O., Review by, 636
- SCHEIDT, WALTER, Die rassischen Verhältnisse in Nordeuropa, review of, 646
- SCHMIDT, M., Körperbau und Geisteskrankheit, review of, 446
- SCHRAIBSCH, MAX, Archaeology of Delaware River Valley, etc, review of, 634
- SCHULLER, R., The Spanish of the Chilam Balam de Chumayel, Yucatan, 267
- SELIGMAN, C. G., Races of Africa, review of, 112
- SHAMAN'S CURATIVE DANCE, A Bear River, 38
- SHAPIRO, H. L., Review by, 646
- SHETRONE, H. C., The Mound Builders, reviews of, 421
- SHIROKOGOROFF, S. M., Social Organization of the Northern Tungus, review of, 637
- SICKNESS: Diagnosticians, Navaho Treatment of, 390
- SMITH, M. G., The Indian Office Pays a Debt, 228; Obituary of, 230.
- SMITH, M. G., Review by, 119
- SMITH, G. HUBERT, Noah Webster, the Archaeologist, 620
- SOLOMON ISLANDS, Education at Ongtong Java, 601
- SPANISH OF THE CHILAM BALAM DE CHUMAYEL, Yucatan, The, 267
- SPECK, FRANK G., Montagnais-Naskapi Bands and Early Eskimo Distribution in the Labrador Peninsula, 557
- SPEISER, E., Mesopotamian Origins, review of, 644
- SPIER, L., AND SAPIR, E., Wishram Ethnography, review of, 430
- STEIGER, G. N., BEYER, H. O., AND BENITEZ, C., A History of the Orient, review of, 435
- STEWART, JULIAN H., Notes on Hopi Ceremonies, 56; Petroglyphs of California and Adjoining States, review of, 427
- STIBBE, E. P., An Introduction to Physical Anthropology, review of, 231
- STONE IMPLEMENTS USED BY the Aborigines of Tasmania, Types of "Tronattas" or, 88
- STOW, G. W., AND BLEEK, D., Rock Paintings in South Africa, review of, 440
- STRONG, W. D., Reviews by, 427, 430
- SUN DANCE DATA, Plains Indian Tribal Correlations with, 216
- SURVIVALS, THE DOCTRINE OF, 307
- SUTTEE IN NORTH AMERICA, The Distribution and Process of, 209
- TAGUNGSBERICHTE DER GESELLSCHAFT für Völkerkunde, review of, 638
- TASMANIA, TYPES OF "TRONATTAS" or Stone Implements used by the Aborigines of, 88
- TEN KATE, H. F. C., Prehistoric Pottery and Culture Relations in the Middle Gila, 268; Obituary of, 415; review by, 438
- DE TERRA, H., Prehistoric Caves North of the Himalaya, 42
- TESSMAN, G., Die Indianer Nordost-Perus, etc., review of, 120
- TEXAS, NOTES ON THE ARCHAEOLOGY of Central, 16

- TIERRA DEL FUEGO, Religious Organizations of North Central California and, 517
- THOMPSON, J. E., Ethnology of the Mayas of Southern and Central British Honduras, review of, 117, review by, 634 *See also* Gann
- "TLO'-HOM-TAH'-HOL," Dr. Merriam's, 264
- TORACCO IN NEW GUINEA, 134, 138, 657
- TOZZER, A., Alfred Percival Maudslay, 403
- TRIBAL CORRELATIONS WITH SUN DANCE DATA, Plains Indian, 216
- "TRONATIAS" OR STONE IMPLEMENTS used by the Aborigines of Tasmania. Types of, 88
- TWO MIMBRES RIVER RUINS, 51
- TYPES OF "TRONATIAS" or Stone Implements used by the Aborigines of Tasmania, 88
- UTAH, EARLY HOME BUILDERS of the Brush Creek Region in North-eastern, 660
- VESTAL, STANLEY, 'Dobe walls. A Story of Kit Carson's Southwest, review of, 119
- WALLIS, W. D., Reviews by, 107, 112, 627
- WARNER, W. L., Morphology and Functions of the Australian Murngin Kinship, 172
- WATSON, EDITHA L., Two Mimbres River Ruins, 51
- WEAPONS AND OTHER OBJECTS in Western Australia, Preservation of Local Types of, 1
- WEBSTER, HUTTON, Maurice G. Smith, 230
- WEINERT, H., Menschen der Vorzeit, review of, 443
- WELTHISH, G., Pottery Implements of the Ancient Basket Makers, 263
- WHITE-ON-RED POTTERY from Cochiti Pueblo, 263
- WILLIAMS, F. E., Orokaiva Society, review of, 250
- WINNEBAGO BELIEFS Concerning the Dead, 659
- WINTHUIS, J., Die Wahrheit uber das Zweigeschlechterwesen durch die Gegner bestatigt, review of, 107
- WISCONSIN POTTERY, 383
- WISSLER, CLARK, An Introduction to Social Anthropology, review of, 111; review by, 451
- YUCATAN, THE SPANISH of the Chilam Balam de Chumayel, 267
- YURRITA, A. DE C., La cultura del vaso campaniforme, etc., review of, 127

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